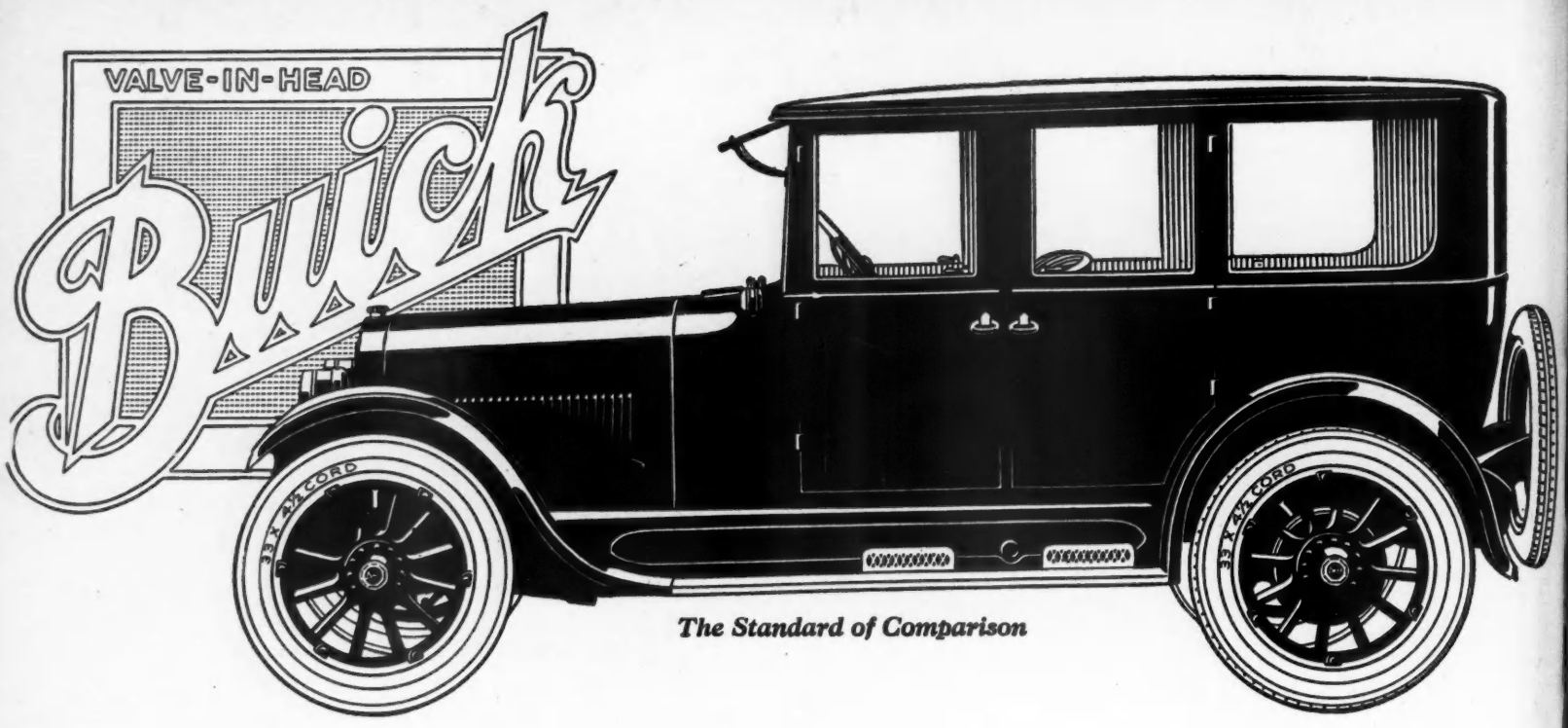
AMERICAN FRUIT GROWER MAGAZINE

November, 1922
Ten Cents A Copy

Edited by Samuel Adams



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The Outstanding Closed Car Value

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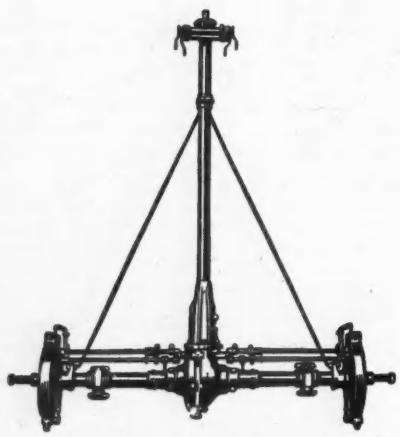

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It is a handsome, richly appointed sedan; tasteful in the quality of its interior fittings and in the comfortable luxury of its wide, easy seats with their fine plush upholstery.

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Orchard Heating in California

By R. S. Vaile

PROTECTION of orchards against damage by frosts has been likened to insurance of buildings against fire. It is, however, a very different and a far better thing.

Insurance takes the fact of loss for granted; protection prevents loss. Insurance distributes the risk and the social costs of risk among many individuals; protection gives the entire reward of foresight and energy to the individual who does the protecting.

Insurance may easily be justified in that it is an accumulator of capital; it permits losses to be taken in such amounts and at such times that individual businesses are not seriously impaired; it furnishes a regularity to income; it shifts the study of certain classes of risks to organizations that are specialists in this line. Insurance (as distinct from prevention) involves the offsetting of one risk by another; that is the consolidation of a large number of chances whereby relative certainty is, as it were, manufactured out of uncertainty.

The field of insurance does not properly commence, however, until all reasonable safeguards have been taken. Risk is an essential element of every business, but whenever the cost of prevention is less than the probable loss, preventative measures are called for rather than the consolidation of risks through insurance.

Economically Successful

Orchard heating in California has proven itself an economically successful method of reducing risk. A citrus grower from one of the nearly frost-free sections recently told his fellow growers that he saved $9,000.00 worth of fruit at a total expense of $990.82. This is typical of the experience of many growers last winter. Despite such experiences, and they have frequently been true in the past, the total average of citrus fruit that is thoroughly protected against frost damage is relatively small. There was a 40% crop loss in 1921-22, which might have been entirely prevented had equipment been general enough. Some of the coldest locations showed the least injury, and it has been estimated that 15% of the total crop was saved by frost protection.

Oil Burning Heaters Preferred

The equipment that has been adopted as standard in California citrus orchards consists of oil burning heaters. Two makes easily predominate at present, namely the Scheu and the Dunn. The general principles of both heaters are the same. A pressed sheet iron bowl with capacity of 5 to 9 gallons of oil is equipped with a down-draft which furnishes air to the surface of the oil, and with a tall stack in which the oil gas burns. The heaters are almost smokeless, and when furnished with louvre stacks (perforated for the entrance of more air) they may be burned without any objectionable soot. From fifty to one hundred such heaters are supplied for each acre of orchard.

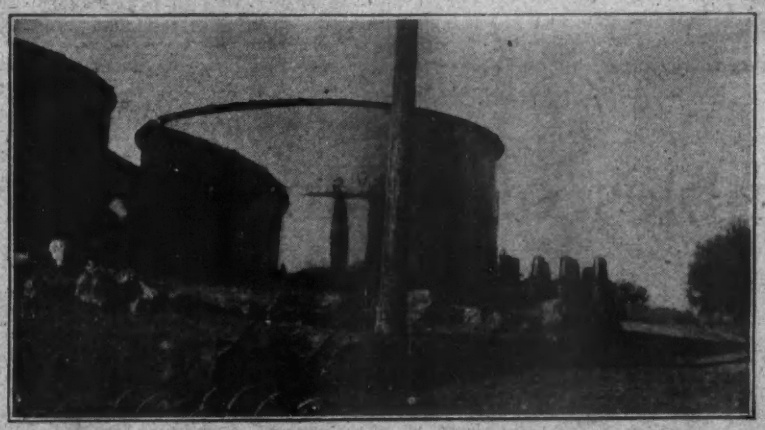
Storage capacity for two to four fillings of all pots is generally provided at some convenient location near the orchard; large properties have their own storage facilities and generally pipe the oil to several points in the orchard to facilitate filling. Owners of small acreages generally have association storage tanks from which they draw as needed. Storage tanks are either concrete or galvanized iron.

Orchard heaters in the orchard ready for lighting. One heater is usually supplied for each tree. Note the umbrella cover that is used to extinguish the fires and also to prevent the winter rains from entering the pots.

The heaters are lighted with gasoline torches. A small quantity of burning fluid is spilled into the opening of the down-draft tube, where a little waste of excelsior has been placed as a wick. This is sufficient to ignite the surface of the oil. After a few moments burning enough heat has been generated so that gas begins to form and from then on practically all the combustion is of gas and takes place in the top of the heater or in the stack.

Methods Have Changed

The change in fundamental methods of frost protection during the past twenty years has been very pronounced. The writer's first experience consisted of lighting great piles of damp straw on the windward side of the orchard just before sunrise, so that a blanket of smoke would cover the trees and prevent the rapid thawing of the fruit. At that time it was thought useless to attempt to "heat all out-doors," and as the rupturing of cells comes largely with thawing, the smoke blanket was considered efficient. Too large an amount of fruit froze under this method, however.



Galvanized iron tanks are located at convenient places near the groves for the storage of oil. Heaters must be filled after each night of burning and very occasionally they are replenished during the night.

Later on, dependence was placed on coal baskets placed beside each tree in the orchard. The coal burned with a slow fire and made smoke. The heat given off tended to maintain temperatures two or three degrees higher than where the baskets were not burned, and there was an ample smoke blanket. Even this method proved inadequate in really cold years such as 1913 or 1922.

In contrast to the older methods, a modern equipment burns with a clean flame and a lighted orchard resembles a well arranged furnace room with numerous small furnaces. Complete dependance is placed upon heat and none upon smoke.

During the past twenty-five years there have been eleven damaging frost seasons in at least some parts of the California citrus districts. Of these there were three years in which practically all damage might have been prevented by the old straw smudges, four others when a complete equipment of coal baskets would have been adequate, and four where modern frost fighting methods were required to prevent serious losses of fruit. In some cases frost equipment has been used at least once each year for the past twenty years.

On one very successful property where actual damage has been practically eliminated, heaters have been lighted on some part of two hundred acres an average of 16 times each season during the past ten years.

Economics of Heating

The economics of orchard heating raises some very intricate questions. The fixed costs of interest, depreciation and handling of equipment, without any actual firing, are not less than $30.00 to $50.00 per acre based on present costs of equipment. In 1917 these fixed charges were figured at $26.00 per acre. The actual costs connected with firing vary from $1.00 per hour in case of light frosts to $4.00 per hour in case of severe freezes. Probably $1.50 to $2.00 per hour is a fair average. An average of 20 hours a year firing would thus cost from $55.00 to $65.00 per acre for both fixed and operating expenses.

Whether such expense is justified depends on four things:

1. Liability of injury without protection.
2. Average length of time that equipment would need to be used.
3. Average yield of the orchard to be protected.
4. Price to be expected for the fruit saved from damage.

The first two questions must be answered for each orchard separately. Temperatures vary several degrees within very short distances so that government records for a given city may not mean very much in relation to individual groves surrounding that city. Packing house records of yields of any certain grove in comparison with the district or state as a whole will give some basis for judgment of risk.

The average yield to be protected is also an individual grove matter. No one knows better than the owner

(Continued on page 12)

Giant Blueberries a Coming New Jersey Crop

Cultivated on a Large Scale at Whitesbog

WHAT team work between the scientist and the practical grower can do in advancing agriculture is splendidly illustrated in the taming of the wild blueberry, which today has given us blueberries of delicious flavor, seven-eighths of an inch in diameter.

This is what Miss Elizabeth White, of Whitesbog, famous for its cranberries, and Dr. F. V. Coville, of the United States Department of Agriculture, have to show after ten years of painstaking effort. In this brief decade, the wild swamp "huckleberry"—so-called locally, but more correctly named the blueberry—has experienced a metamorphosis so that now at Whitesbog there are fourteen acres of cultivated blueberries producing fruit.

Our fruit specialist, Mr. Mason, and the editor visited Whitesbog one day last month when the blueberry harvest was at its height. The field which was being picked contained about 20,000 bushels, seedlings that were obtained by crossing certain selected parents. Ten years ago a premium was offered to the natives of the region for every bush they could find which bore berries five-eighths of an inch or more in diameter.

As a result some splendid parent bushes were found and much to the delight of the workers, some of the seedlings resulting from the crosses were found to produce even larger and better berries than the parents.

The blueberries which have been harvested at Whitesbog in the last two years have sold on the market for just about double the price of ordinary wild huckleberries. In 1920, Whitesbog blueberries netted about $12.00 per crate of 12 quarts above the cost of freight, cartage and commission, and last year they netted about $12.50 per crate. These by the way, are berries that are not of uniform grade since there is a great variation among the seedlings which are now being picked. Choice berries of uniform grade have retailed as high as 75 cents a quart, and just as soon as sufficient plants of standard varieties come into bearing, Miss White expects to handle a product of still higher quality.

Miss White and Dr. Coville are making a careful study of the individual plants and have set aside the most promising for propagation. It is their purpose to select certain individuals to propagate standard varieties showing a desirable range of good size and flavor, and having other desirable qualities. In a few years it is expected that large quantities of these standard varieties will be available. However, some of the desirable original parent plants have already been propagated and plants are available in considerable quantities. Cuttings are made from the parent plants which are propagated in the greenhouse and transplanted to pots in cold frames until they are well rooted. After about a year the plants attain sufficient size for transplanting to the field.

Commercial blueberry culture looks like a very promising field. The huckleberry has already established its place in the American diet and on the city market. A berry of superior quality meets with a ready demand—New Jersey Agriculture.

Photos Courtesy N. J. Exp. Sta.

Harvesting New Jersey Blueberry crop. Blueberries can be grown along Atlantic Seaboard from Maine to Florida and in the Middle Western States such as Michigan and Wisconsin. There seemingly is a bright future for this berry.

A Fine Young Bush With Heavy Crop

Twentieth Century Blueberries

Rambles of a Horticulturist

By C. I. Lewis

At Bear Lake the party was met by J. R. Krager, County Agent from Beulah. Mr. Krager took us to the famous Hill Orchards which were formerly known as the Rose Orchards. There are 360 acres of fruit, one of the most interesting blocks being some sweet cherries 35 years old, containing such cherries as Windsor, Schmidt, Lambert and Bing. The trees on the whole were in very good condition. The sour cherry blocks on this farm have had 26 consecutive crops. The apples, especially the Wealthy, were well loaded and there were some fine old Seckel pears. The trees are now being fertilized with nitrogen and acid phosphate. This orchard is in a section of great abundance of fine fruit land; in fact, the ridges extending from the Hill Orchards to both sides of Crystal Lake, offer an unusually good opportunity for one to invest in orcharding. The lands are rolling, have good exposure, have a splendid air and soil drainage and have a long growing season.

Beulah District Promising

A. J. Rogers of Beulah has a fine farm overlooking Crystal Lake. He has 120 acres of fruit, 30 each of apples, cherries, peaches and pears. He has some of the finest cherries we have ever seen in the east. He obtained his Bing and Lambert Trees from the Pacific coast. They are growing strong and show very little gummosis and the fruit is large, firm and of fine quality. In addition to the Lambert and Bing, there are some Schmidt, Windsor and Duke. The biggest acreage of cherries, however, is the Montmorency, there being some very thrifty blocks. This orchard is planted on virgin soil, Mr. Rogers clearing the same and planting it to orchard. Its high elevation and rolling character make it a very desirable location. The Greensboro peaches were just ripe in early August and these were to be followed by Carmen and Elberta. Mr. Rogers keeps track of the costs of his operations. In thinning his 30 acres of peaches this year he found it took about 3,000 hours, which is equivalent to about one hour to the tree and would probably be an average cost. He has been running three year expesiments with nitrate of soda and obtained very satisfactory results. He figures his fertilized peaches are yielding about twice as much as the checks.

Leelanau A Cherry Paradise

Leelanau County has a very small amount of land that it not adapted to cherry growing; in fact the whole county could pretty nearly be planted to solid cherry orchard. It is protected on both sides by large bodies of water, the season is extremely late and in going five or six miles it will make a difference of ten days in picking time of the cherries.

(Continued on page 14)

The Blight Proof Pineapple Pear

By R. D. Rimes

A Young Pineapple Pear Tree Heavy Laden

WE HAVE here in the vicinity of Ludowici, Georgia, a pear we believe to have great merit, and one which means much to the future of American pear culture. We believe that it brings back to the great south and the middle west an industry which died out a number of years ago due to the fact that we did not have varieties which would resist the blight. The three original trees of this variety have been growing in this section now for 42 years and during that period they have been growing close to well-known oriental hybrids such as the Kieffer, LeConte and other similar varieties. These varieties have blighted very badly but the Pineapple, during all this period, has shown no evidence of blight.

Prof. H. P. Stuckey, Director of the Georgia Experiment Station, says that this variety is blight-proof, while Mr. W. V. Reed, State Entomologist of Georgia, says that the Pineapple pear is blight-proof without a doubt.

Resist Inoculation

For a number of years the pear trees have been inoculated with blight and they have had grafted into them varieties which are subject to blight, but the Pineapple pears maintain their complete resistance to the ravages of this disease. The trees are a very rapid, strong grower, are extremely vigorous, and the fact that they are now 42 years of age indicates that they will be a variety which will be of permanent value in our plantings. It blooms very early, in fact two or three weeks before most of the other varieties bloom, and on that account it may prove to be a good pollinizer for some of the other extremely early bloomers. Here in Georgia the variety ripens as early as July. To the west and north its period of maturity, of course, would be considerably later than this. The tree is remarkable, from the point of view of precociousness, the first fruits appearing in this section on the tree when it was about three years of age, and we have some ten year old trees that have produced eighteen bushels to the tree, while the old trees have yielded as high as 66 bushels to the tree. The fruit is extremely attractive, it is large in size and individual specimens have been known to weigh as much as 20 ounces. The fruit is a golden yellow, spotted with conspicuous small, brown specks; it has the shape somewhat typical of the oriental hybrids; its aroma is remarkable, having a very distinct pineapple odor; it is sweet, juicy and of good flavor. It seemingly has a great future as a canning pear, not only for home purposes but for commercial canning. It is firm, is a good shipper and keeps remarkably well after harvesting.

Present Stock is Limited

The available stock for planting this fall has been largely exhausted and a great many young orchards are being established throughout Georgia. Propagators, however, are planning to have a large supply of these trees available for 1923 and 1924.

The Pineapple pear has come to stay, it is going to help revolutionize fruit growing in the south and middle west. Years ago the south had a splendid pear industry which was wiped out by the ravishes of the blight. The introduction of melons, pecans, peaches and apples in our highlands is bringing a great source of wealth to the old south. Seemingly, this new pear will be, in the future, one of our greatest sources of wealth all through the south, from Texas north to Dakota, and from that region east to the Atlantic ocean the Pineapple pear will be welcomed. Its vigor, blight-resistance qualities, its heavy yield and its attractive fruit will make an appeal wherever it is planted.

This Pineapple Pear tree is now more than forty years old and is still vigorous and productive.

R. D. Rimes, Ludowici, Georgia, and one of his prize Pineapple pear trees. Note productiveness of the tree, size of the fruit and general vigor

—Managing Editor's note:

The Managing Editor has not had the pleasure of seeing the trees of this variety growing; but he has seen the fruit. Its aroma is remarkable and a package of the fruit will permeate the air of a room very rapidly with a delightful, pineapple aroma. The specimens sent were large, firm, sweet and of a quality generally superior to that of most orientals. One does not expect, in oriental hybrids, the finer eating qualities of the Bartlett, Bosc and Seckel. There is a great demand for pears which can grow in sections where blight has practically eliminated the industry. The blight-resistance of this variety, its vigor, and its heavy producing qualities, should mean much to a large section of the country which heretofore has not been producing its quota of pears.

The Federated Fruit and Vegetable Growers, Inc.

By C. I. Lewis

AT A meeting held in Chicago, the first week in October, much progress was made in perfecting a plan for the Federated Fruit and Vegetable Growers, Inc. The report of the committee showed that the corporation papers had been filed and by-laws were drawn up in Chicago during the meeting. Yet the marketing work of the Federated will not begin until the first of January.

As you notice by the title of this article, the name has been changed, and the word Vegetable included. This was done because a number of vegetable grower associations are applying for membership.

The North American Fruit Exchange, which is being absorbed by the Federated Fruit and Vegetable Growers, Inc., has during the past few years done a splendid business in the handling of vegetables. In fact, they have made a very enviable record in the handling of the southern vegetables. The organization will open two offices. The main executive office will be in New York, but an organization office will also be maintained in Chicago. New York is chosen as the executive office of the Association because it is the center of a very large consuming population, and it is also the principal export port in the country and is the main financial center.

Mr. Arthur Rule, who will be the general manager of the Federated, has succeeded in selling his co-operative ideas to big New York bankers, and their aid has been greatly appreciated for the past few years. It is distinctly to the advantage of the fruit and vegetable growers to have a headquarter where large financial interests are sympathetic to the fruit growers and at least believe in the co-operative movement.

It must be remembered that the American Farm Bureau Federation inaugurated the movement which resulted in the Federated Fruit and Vegetable Growers, Inc. The Farm Bureau has been behind this movement at all times, and will be behind it in the future.

One of the features of the Federated Fruit and Vegetable Growers, Inc., which will interest fruit growers all over the country is that it is an organization which not only has the backing of the Farm Bureau, but it is to be grower-owned and grower-controlled. Each association or exchange may have one director, but he must be a grower.

These directors will meet and choose an executive committee of five from their number; thus the organization is always kept purely a grower organization both in membership and in control.

At the meeting in Chicago held early in October many of the committee of twenty-one which was appointed by President Howard of the American Farm Bureau were present and the special committee which had the work of drawing up articles of incorporation for the Federated Fruit and Vegetable Growers were present. In addition many leading men of the fruit and marketing game from all over the United States from the Atlantic to the Pacific were present. It was felt by all that the absorption of the North American was a very good stroke. Arthur Rule has always been regarded as a very efficient manager, one who knows marketing thoroughly, and who believes in wide distribution. The Federated will get the benefit of the 140 distributing points which he has developed for the North American Fruit Exchange. Perhaps no man in late years in the American fruit game has developed more leaders in marketing than has Arthur Rule.

Many old associations are already applying for membership in the Federated Fruit and Vegetable Growers, Inc., and fruit and vegetable growers from all over the United States who are not now organized are asking that an organizer be sent into their community, so that they may become a member of this nation-wide marketing organization. Already so many members are coming in sight that it need not surprise anyone if the Federated Fruit and Vegetable Growers this coming season will prove to be the largest handlers of produce in America.

The officers of the Federated believe

(*Continued on page 12*)

How Do You Know What To Plant?

By C. I. Lewis

PLANTING time has come. Between now and spring many a fruit grower is wondering just what he can plant to the best advantage. Some may ask, "Will it pay to increase our acreage?" In answer to that question we would say, "Yes." With the increasing population and the development of new markets, a heavier tonnage of most fruits can be handled, and it must be remembered that should we stop planting entirely, in about ten years our orchards would show such a decline that it would require an enormous planting to catch up. If no new acreage was planted but just re-plants made, it would take millions of trees annually. Various weather conditions and pests take a toll of millions of trees from our orchards each year. In the middle west alone, in one decade, about nine million apple trees were lost from the attack of the Blister Canker; occasionally an unusual severe winter hits some section and takes a heavy toll; various blights such as Fire Blight have killed many trees; borers, rodents, etc., have been especially hard on young trees. Then there are orchards which have passed their prime, old trees which have lived as long as it is reasonable to expect a tree to live, and it must be remembered too, that many trees are naturally short-lived. Probably the average bearing period of a peach orchard in America is not much over ten years, the red cherry orchard only about twenty years, while with plums, the age varies from ten to as high as thirty years, so all these factors must be taken into consideration, that if we did not plant we soon could not produce anywhere near the quantity of fruit needed in this country.

To Make Money

You are in the business to make money and in deciding what to plant, that should be the prime factor for you to consider. In bringing this about you should always plant types of fruit and varieties which you know are largely a success in your neighborhood. You should also in the future tend to emphasize quality, more than in the past perhaps, because there is a decided drift in this country at this time in favor of quality fruits.

Annual Bearers

Everything else being equal, the tree which bears a crop every year would be more profitable than those which do not. With apples, among the annual bearers we can name Jonathan, Winesap, Delicious, Ortley, Staymen, Winter Banana, while the red and sweet cherries, most varieties of plums, peaches and pears will tend to bear annually unless severe weather during the winter or during the blooming period kills the buds. There are other varieties which are nearly annual bearers, and which are annual bearers with proper care, such as the Grimes, Rome and Wealthy. Often the Duchess can be brought into annual bearing under proper conditions. There are many varieties, however, which tend to bear only once in two years, such as the Transparent, Gravenstein, Red Astrachkan, Baldwin and Russian varieties Many of the nut trees, especially pecans and often walnuts will only bear a crop every other year unless conditions are very favorable.

Varieties That Bear Young

Another group of trees for you to take into consideration are those which begin to have a sprinkling of fruit by the third year and are in heavy bearing by the seventh. These will bring money in to you when it is sorely needed. Among the varieties which have this habit are the Jonathan, Ortley, Grimes, Golden Delicious, Delicious, Winesap and practically all the Russian varieties of apples. Bartlett, Bosc and Clairgeau pears, sour cherries and filberts are also in this group. In contrast to these are varieties which begin to bear from the seventh to the fifteenth year, often ten or twelve years old before reasonable crops are secured. Among these are the Baldwin, Spy, King, Yellow Newtown and Spitzenburg apples; the Anjou and Comice pear; the Napoleon (Royal Anne) Bing and Lambert cherries; English walnuts and pecans. Now, we do not mean to infer that these varieties which come into bearing late in life should be abandoned, nothing of the kind, but a man would be unfortunate to make his entire planting of only those things which are late in bearing. He should include a generous percentage of varieties which come into bearing young in life unless he is so financially situated that he can afford to wait indefinitely for returns.

Season of Maturity

It is very important that you study the time at which the varieties of fruit which you grow mature. For example, if you are going to grow early apples, they would be very profitable in southern Illinois and Indiana, in Delaware and Maryland and south New Jersery, or in California, but these same early varieties might not be profitable in northern Wisconsin or northern Michigan, in parts of New England or northern New York, for the reason that by the time they were ready to market you would be thrown into competition with a second and third series of varieties which have already matured and are being offered to the trade. As far as apples are concerned, the market is very finicky. There is a relatively short time when they want Transparent; they soon tire of the Duchess and the Wealthy in a relatively short time. Winter Banana and Grimes are prized in the early fall, and after a certain season the trade does not want these varieties. It wants those which naturally follow. If you are in a district which cannot produce early varieties extremely early, you should plant late, standard winter varieties. With some of the soft fruits, however, this might not necessarily be true. For example, if you can produce Bartlett pears rather late, you will get a ready market because the price always starts out high, in mid-season drops low, and comes back again for the late stuff, so that pear growers in parts of Oregon and northern California which mature a late crop, have a distinct advantage. In the same way, if you can grow the latest sweet cherries which can be offered on the market late, they are greatly prized. Such a district as Cove, Oregon, which gets cherries into the markets here as late as the middle of August, will find that late maturity in this case pays. Extremely late berries or a good peach which closes up the season is prized.

Number of Varieties to Plant

To answer this question we must know whether or not you are going to be a shipper sending out carload lots to the various markets or whether you are growing fruit near some big city and hauling it in by auto truck every day. If you are a shipper you should grow, generally, only three or four fruits of one type so that you can make up solid cars of given varieties, of a specified grade and size. You might grow several types of fruits, some sweet cherries, some apples, some pears and some plums. The attempt should not be made to grow too many varieties and that is especially true in the case of apples. It might not be so true in the case of peaches or plums. If you are selling fruit to a city like Detroit or St. Louis where you are growing fruit within hauling distance by auto truck, your problem is to be able to furnish fruit every day in the year.

Photo Courtesy N. J. Hort. Soc. News

Red Astrachan Orchard, Minch Bros., Bridgeton, N. J.

Now, a group of apples which would give a long season, in order of ripening, would be as follows: Yellow Transparent, Henry Clay, Carolina Red June, Liveland Raspberry, Early Harvest, Astrachan, Benoni, Jefferies, Duchess, Wilson Red June, Maiden Blush, Early Melon, Williams Early Red (or Favorite), Wealthy, McIntosh, Grimes, Jonathan, Wagner, Baldwin, Delicious, Spy, Stayman, Rome, Steel's Red, Winesap, Yellow Newtown and Golden Delicious.

A selection of peaches which would extend over a long season in relative order of their ripening would be about as follows: Mayflower, Red Bird Cling, June Elberta, Greensboro, Arp Beauty, Eureka, Mamie Ross, Alton, Belle of Georgia, Champion, Early Elberta, Captain Ede, J. H. Hale, Elberta, Elberta Cling, Mammoth Heath, Salway and Krummel October. The first five varieties named are clings; all the rest are free-stone except the Elberta Cling and Mammoth Heath. The Eureka, Alton and Champion have white flesh.

If you are going to plant plums the list is legion. In the middle west you would probably be interested in the Japanese and American hybrids, varieties like the America, Gold, Omaha, or possibly a Japanese like the Shiro or Santa Rosa. If up through New York, you would include many of the European varieties, and by all means the Imperial, with probably a few of the Japanese varieties like Abundance, Burbank, and Red June. If you are a shipper out on the Pacific coast, the following list given in the order of their ripening, which would give you shipping from about the first of June to late August, would fill the bill: Beauty, Clyman, Climax, Combination, Burbank, Abundance, Peach, Sultan, Satsuma, Botan, Tragedy, Wickson, Washington, Columbia, Sugar, Grand Duke, Kelsey, Yellow Egg, Robe de Sergeant, German, Imperial (Epineuse), Pond (Hungarian), and Agen (French).

The red or sour cherries can be divided into a number of groups. There is the group including Dyehouse and Early Richmond, a second group which includes the Montmorency, such as the Montmorency, Montmorency King, Montmorency Large, Montmorency Sweet, Stark Montmorency, etc. A third group would include the Morello variety, such as English Morello, Early Morello and Suda Hardy. In the commercial districts the plantings are about half and half; Early Richmond and Montmorencies.

Should you be interested in planting a few small fruits the following list of blackberries would give you a good picking season. Early Harvest, Mercereau, Eldorado, Blowers, Kittatinny. If raspberries are grown, you might plant Cumberland, Kansas or Plum Farmer. Some red raspberry varieties are Cuthbert, King, St. Regis (or Renere).

If you wish to grow grapes you could choose from the following: Black varieties are Eclipse, Moore's Early, Campbell's Early, Worden, King, Hicks, Concord. White varieties of grapes are Niagara, Moore's Diamond, while the red varieties are Lutie, Lucile, Agawam, Woodruff, Brighton and Delaware.

Apricots which can be grown successfully throughout the east are Superb and Stella, while on the Pacific coast, Tilton, Royal, Blenheim, Moorpark and Lewis would be included.

A good collection of pears which would extend through quite a long season would include such varieties as Bartlett, Clapp's Favorite, Howell, Kieffer, Seckel, Anjou, Bosc, Flemish Beauty, Winter Nelis.

Shall We Diversify?

In an article of this kind the question of diversification is too great for a thorough discussion. The extent to which you should diversify would depend upon your local conditions. If you are growing fruit for some nearby market, by all means diversify. If you are living up in Sturgeon Bay, Wisconsin, specialize in red cherries and if you are over in western Michigan grow four or five different kinds of fruit. If you are in Wentachee, probably apples should be your big game. If you are in Hood River, not only apples but some Lambert cherries and Bartlett and Anjou pears. In a district like Salem, Oregon, typical of that section, plant fruits which are not grown in many other sections of the United States; for instance, Loganberries, Sweet cherries, filberts, English walnuts, pears, prunes and Ortley apples. If you are in the famous Santa Clara Valley of California, you know that prunes, apricots and pears are a success, and that the famous Sacramento Delta district and the Early Hill districts of California should plant a wide variety of fruits for shipping. If you are down in Calhoun County, Illinois, you can grow apples to advantage and possibly should leave other fruits largely alone. It is a question for you to solve on your own farm and in your own district, with a study of the market which you supply.

Hardiness a Problem

In some sections hardiness is the main question, and I would recom-

(Continued on page 13)

High Lights on European Horticulture

By W. L. Howard

Professor of Pomology, University of California

OF ALL of the countries of Europe that I have any personal knowledge of, some thirteen or fourteen in number, France holds the most of interest to the American horticulturist. Agriculturally speaking, France has a climatic range as great as between New York and Florida or Oregon and Mexico. Of course there are no such extremes in temperature as between New York and Florida, but the crop range is fully as great as between the northern and southern parts of the United States. From Cherbourg in the north to Marseilles in the south, or from Brest in the northwest to Nice in the southeast, we find the fruits ranging from the apple and cherry, growing under the best of climatic conditions, to the almost perfect home of the fig, olive and vinifera grape.

Within the great triangle roughly formed by the cities of Caen, Le Mans and Paris (each side approximately 100 miles), I found more apple orchards than in all the rest of France put together. Cherries, both sweet and sour, were also to be seen everywhere. In general, this region has a cold, foggy climate in winter and spring, but it seemed to be just what these two fruits like. I had heard much about the fine apple orchards destroyed by the Germans, but after traversing the war zone from Brussels to Paris, from Paris to Chateau Thierry and from Chateau Thierry to Amiens, and crossing and recrossing the famous Hindenburg line, without seeing anything more than small family orchards or small clusters of stumps, I was led to believe that there were not many important orchards in the war zone.

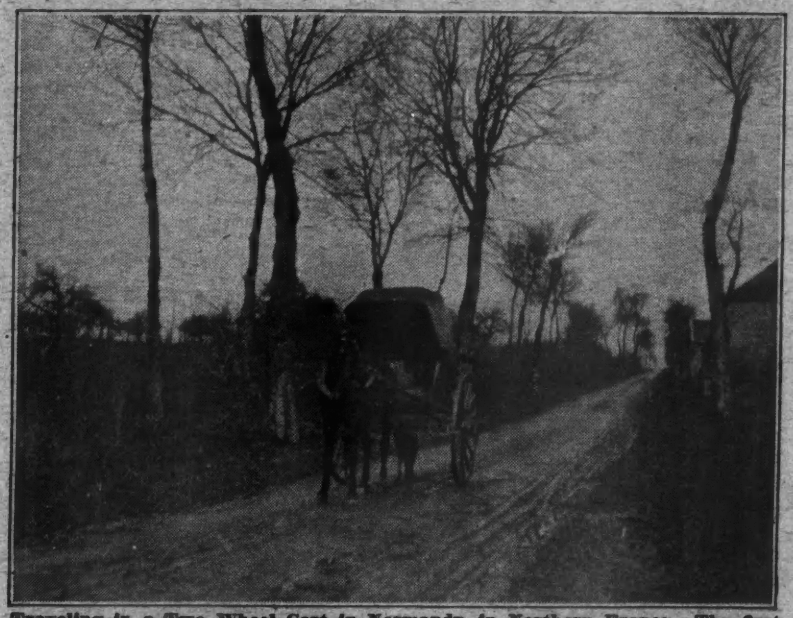
The Apple Region

The apple region of France lies mainly in the ancient province of Normandy, which in general lies along the English Channel. In that region, in an hour's travel one can see hundreds of what they consider to be commercial orchards. The size of these orchards ranges from one or two acres up to perhaps ten acres. The largest one I saw, after much traveling in that section, contained only twenty or thirty acres. The fruit is grown entirely for cider purposes and the seeds carefully saved and sold to apple growing countries, chiefly the United States. The major portion of the population of Normandy seem to prefer cider to wine as a table beverage, possibly because it is considerably cheaper. Incidentally it has more "kick" to it, too. These people are expert cider makers. The cider itself is often quite clear and sometimes has a sparkle, almost resembling champagne. Early in the fall this cider, in bottles could be bought for about six cents a quart, while the cheapest wine would have cost twice this amount. In some parts of the country it is almost as cheap to drink cider as it is water. I spent nine weeks at one place where common drinking water with no mineral properties whatever cost four to five cents a quart.

Apples Are Seedlings

Almost without exception the apples of France are seedlings and very inferior for eating purposes. Nevertheless apples of a kind are sold to hotels and restaurants during the summer and fall and often served on the tables, but they were poor in quality, scrawny in size and often wormy.

I do not wish to leave the impression that there are no good apples produced in France for there are, but they are produced in the private gardens of the well-to-do and rarely find their way into the markets. A French fruit garden is exceedingly interesting with its dwarf apple and pear trees, often grown in espalier or cordon form, and its peach and pear trees, too, trained flat against the high walls of the garden and buildings. Often the pear trees would be five or six feet apart and flattened against the wall to a height of four to six feet, and then grape vines grown between would be carried above their tops and trained to cover all the wall space above the trees. None of these were particularly thrifty looking, but in the aggregate produced a lot of fruit.



Traveling in a Two Wheel Cart in Normandy, in Northern France. The first tree on the left is a wild Mazzard Cherry

The cordon apple and pear trees generally bordered the garden paths. Some of the cordon pears appeared to be 50 years of age or more. Often they were grafted into each other, forming solid cordons for 50 to 75 feet or farther and were immensely fruitful. The wall peaches were always grown on St. Julien stock.

The French seem to like fruit, so I cannot understand why they do not give more attention to improved varieties of apples and pears. Blackberries and raspberries they do not seem to use at all. I have seen oodles of wild blackberries growing along the old stone fences in the country no one except small children even took the trouble to pick.

French Cherry Seed

Practically all of the cherry seeds used in the United States for rootstock purposes come from France. The sweet cherries of California and Michigan are chiefly grown on what we have all along supposed to be wild Mazzard stock. I made two special trips to the wildest parts of Normandy. I was far from a railroad where the only means of travel was a two wheel cart. I succeeded in finding the region where wild Mazzards are supposed to grow. I was told by collectors that these were the only trees of the kind in France and that their entire supply of seeds came from them. I soon found there were not enough wild trees to supply seeds for one good sized American nursery. What they have been sending us as Mazzard seeds in reality are seeds from various cultivated varieties. This may possibly account for the wide variation in behavior of our cherry trees after they are planted. I procured a small quantity of the genuine wild seeds, which I collected myself and which I hope to test out in our rootstock studies.

East of Palma, Majorca, Balearic Island. Renewing an old Almond Orchard by planting new trees among the old ones. The young trees are heavily fertilized with animal manure. Oldest trees from 60 to 75 years of age. This scene is in one of the very best Almond sections of Majorca. Near by were olive trees known to be about 3000 years old.

I saw them harvesting the wild Mahaleb cherries in southeastern France. This was in the Rhone Valley near the city of Lyons. The Mahaleb is used for hedge purposes, the grain fields in this vicinity being separated and subdivided by hedge fences. Apparently there were plenty of the wild trees to supply not only the United States, but other countries as well. Left alone, the Mahaleb cherry will probably grow to a height of twenty-five to thirty feet and attain a diameter of twelve inches or more. There is no reason, therefore, why this species should exert any dwarfing influence on even vigorous growing trees like the sweet cherry. Some people fear that the sweet cherries might be dwarfed by using Mahaleb stock, but I have no evidence to support the theory.

The Walnut Industry

Walnuts are grown throughout the southern half of France. However, for commercial purposes there are two distinct regions. One of these regions, the so-called Bordeaux, which in reality does not touch Bordeaux at all, centers about the little city of Perigueux. This district is perhaps fifty by one hundred miles in size and is made up chiefly of seedlings with very few named varieties, although every little locality had its own local names for the walnuts they grew, generally named after the man from whom they procured the buds. Strangely enough, practically all of the trees are grafted, but instead of procuring well recognized varieties, they go to their neighbors and procure buds from their best seedlings. They have some very early ripening seedlings which find a ready market in Paris and London toward the latter part of September. These early nuts are always sold without drying. The French people do not like walnuts after they are thoroughly dried, and neither do the English, apparently, as they buy huge quantities of the fresh undried nuts. This is the district that makes the most trouble for the California walnut industry as the quality of their nuts is so poor that they have to crack them and sell practically the entire crop as meats This, of course, has reference to what they sell to the United States. With their cheap labor, it has been very difficult, if not impossible, for us to successfully compete with them.

The other walnut district of France is in the southeast in the Isere Valley near Grenoble. This district is small but grows chiefly only the best varieties. Here is where the Franquette and Mayette varieties originated, and the latter, at least, is still one of their leaders. Strangely enough, the codling moth seemed to be doing much more damage here than in the seedling district. The trees everywhere were old and large and very few new plantings were being made. The oak root fungus disease was playing havoc with the walnuts everywhere. They know nothing about the use of resistant stocks. Unless the disease is checked, it is only a matter of ten or fifteen years when most of their walnuts in the two districts will be pretty well wiped out.

Spanish Almond Industry

The almond industry of Spain was found to be largely centered in Majorca, the largest of the Balearic Islands, which are out in the Mediterranean about two hundred miles from the coast of Spain. This island has a climate much like parts of Southern California. The almonds are chiefly grown without irrigation, although they do irrigate when they can procure the water. Apparently the only way of securing water is to pump it from wells by means of huge windmills. These pumps were apparently unable to throw anything better than a two or three inch stream. Much of the agricultural land on this island has been under cultivation for at least three thousand years, and I was greatly interested in learning how they have managed to keep up the fertility. I found that mineral or commercial fertilizers are practically unknown, al-

(*Continued on page 17*)

Pruning Deciduous Fruit Trees in California

By Warren P. Tufts

Assistant Professor of Pomology, University of California.

IN CALIFORNIA there is probably no orchard operation that is more carefully and assiduously carried out than is the annual pruning. Although generalizations are dangerous, the statement may be hazarded that the Standard California pruning method has in the past been characterized by the *severity* of the cutting. In other fruit sections, the opposite extreme of little or no pruning may undoubtedly be found. As one travels from orchard section to orchard section throughout the country, the fact is emphasized that there is apparently a great difference of opinion as to how fruit trees should be pruned.

The cutting of young trees is primarily designed to influence the form; however, the functions of the plant are also profoundly altered. "If you would have your trees stocky, strong and mechanically able to support heavy crops, prune your orchard severely for at least four years after planting," has been the advice commonly heard in nearly all deciduous fruit growing sections of California. Considered from the standpoint of plant nutrition, it would seem that annually to remove a large portion of the leaf-bearing area, which is the factory of food production for the tree, in addition to the loss of stored food reserves, would of itself tend to weaken the life processes of the plant. The fact, however, that orchard trees have in almost all cases responded to the heavy cutting with an exuberant growth the following season has misled many to believe that annual shoot growth alone is the true index of the plant's vigor. It is not, however, more accurate to measure the tree's activity by the total weight of wood laid down over the whole plant? In order to arrive at a correct conclusion in a feeding experiment, say with pigs, the whole animal is weighed from time to time, and not merely a certain portion. So also in the case of plants, a true measure of vigor should be one which will be indicative of the response of the whole to certain treatments, rather than the response of certain organs.

Experiments by the California Experiment Station have shown that a very close correlation exists between the diameter of the trunk of a young non-bearing tree and the weight of both top and root. Any pruning practice which gives a greater girth in the young tree may be safely taken as an index of larger development over the entire plant.

Table I

Influence of Pruning upon Tree Development

Three Year Old Nonpareil Almonds.

	Treatments: Thinned Headed Severely	Thinned Headed Lightly	Thinned Only
Weight of prunings	9.7	11.0	8.5
Weight of tops	19.7	37.0	39.5
Weight of roots	16.9	30.3	32.5
Total weight	46.3	78.3	80.5
Spread of roots	9.8	12.7	15.5
Depth of roots	5.0	5.5	4.7

Weights, pounds, lengths in feet.

It will be noted that the weights of prunings are not directly correlated with the treatments. The figures for the weight of the tops remaining after the pruning show a definite correlation with the pruning treatment; that is, the lighter the pruning, the heavier the top. This same statement holds true for the weights of the roots. Some growers have been of the opinion that although a "thinning out" favors the development of the top, a severe cutting back of the new shoots each year, while the tree is young, is necessary to promote strong root development. The figures here presented indicate that the contrary is true; in other words, a heavy pruning results in a comparatively small root system.

The spread and depth of the roots of the trees receiving different pruning treatments show, in general, a restricted or limited root system that is directly proportionate to the severity of the pruning. Stated in another way, the total weight of the tree and all its parts (tops, roots and prunings) is inversely proportionate to the severity of the pruning it has received. In this connection, it is interesting to note that the same results were attained and the same conclusions reached when the trunk circumferences were used as a measure of total tree development.

Nine-Year-Old Royal Apricots. Note Comparison of Short and Long Pruning

The results of apple pruning investigations in England, Oregon, West Virginia and other sections, show that the less a tree is pruned, the larger and heavier it becomes. In order to ascertain whether these results hold equally well with other deciduous fruits, careful measurements were made in the California Experiment Station orchards at Davis, Cal. The experimental trees were planted in deep, rich, alluvial loam soil, had not been irrigated up to the time of these measurements and with the exception of the pruning had received identical cultural treatment. The following table briefly summarizes the results of the different pruning treatments after one season's growth:

Table II

Influence of Pruning on Stockiness of Trunk

Average Increase in Circumference in Centimeters.

Kind of Fruit	Pruned Severely Cm.	Pruned Moderately Cm.	Pruned Lightly Cm.
Apricot	11.7	12.6	15.2
Cherry	10.0	11.2	12.3
Peach	12.0	16.9	19.6
Pear	8.7	9.1	9.7
Plum (Japanese)	6.3	10.4	11.3
Plum (European)	7.2	8.8	9.6
Prune	6.2	7.1	8.4
Average	8.9	10.9	12.1

Experiments were also made with almonds under somewhat different conditions, but with similar results.

In order to secure data on the stockiness of the main branches as influenced by different pruning treatments, measurements were made on apricot trees which had been only lightly pruned, others which had been moderately, and still others which had been severely pruned. All measurements were made at a height of three feet from the ground, the trees having been evenly headed at time of planting. The results of these measurements are exactly in accord with those made on the trunk. Certain German investigators have reported similar findings with apple branches. The following figures summarize these observations:

Table III

Influence of Pruning on Stockiness of Branches

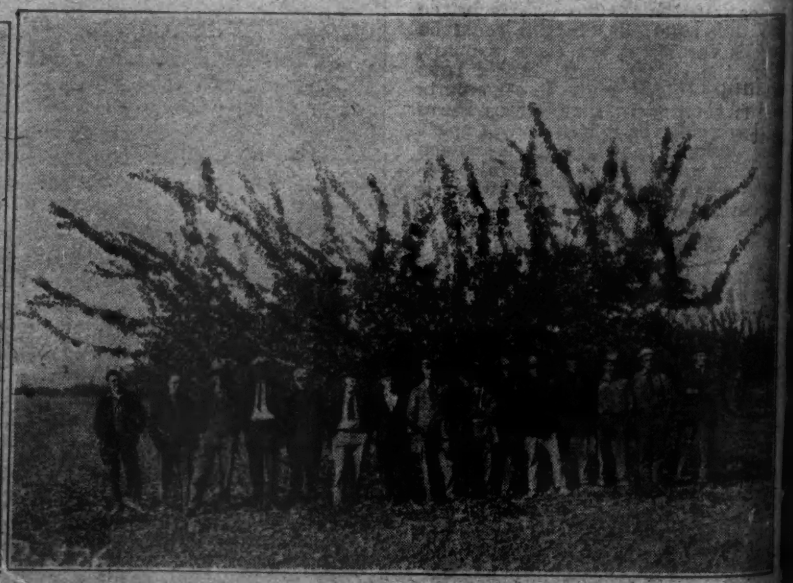
Average Increase in Circumference in Centimeters.

Fruit	Heavily Pruned Cm.	Moderately Pruned Cm.	Lightly Pruned Cm.
Apple	8.4	9.5	11.7
Apricot	3.85	4.66	5.68

Another set of measurements presents data perhaps still more interesting and instructive. Several hundred strongly vegetative shoots of two, three and four years old French prune and Bartlett pear trees were selected and comparable branches headed in such a way as to leave 12, 24 and 36 inches of the new growth. The following table summarizes the results obtained:

(*Continued on page 26*)

Twenty-Year-Old Royal Apricot Tree "Short Pruned" by old California Standard Method



Thirty-Year-Old Royal Apricot. Note Spread of Branches. Tree Being Worked Over to "Long System"

Nationalize Our Horticulture

LOCAL pride is a most excellent attribute. It develops industry, and may be the prime factor in building up a locality, a commonwealth, or an entire district, but local pride must not be carried too far, if it does it causes the district to become provincial and jealousies of the development of other districts or sections are apt to arise. Let us consider the question of apples for instance.

Apple growers all over the United States will make much more money by pulling together and working for those things which will develop the apple industry, than if they allow their jealousies to dwarf their perspective and thus use their mental energy on those things which are not constructive. The apple growers of the Pacific northwest on the one hand, and those in the Applachian Mountain District on the other, can do much more for their respective industry by working together than they can by pulling apart. Likewise the orange growers of Florida and California have a great deal in common. We need to have more national pride and to give more thought to the big fundamentals underlying the principles of horticulture, such as high production per acre producing a larger percentage of good fruit, and handling our business in such a way that we can afford to sell our fruit at a price that will induce the consumer to buy liberally.

Questions of tariff, legislation, education, distribution, and advertising call for the best mental exertion on our part, and we have no time or room for bickerings and jealousy. Let us all pull together and nationalize our horticulture—it needs it badly.

A Financial Policy

FARMERS are criticized sometimes but unjustly so, because they seem to be clamoring for a better financial policy on the part of the entire nation. The public especially in the large cities is apt to interpret this clamoring as a demand for special privilege. When they make such an interpretation they are doing the farmer and fruit grower a great injustice, and show that they fail to understand the problem before the producer.

All that the farmer and fruit grower is asking for is a national financial policy which will enable him to do business, for example manufacturing, commerce and business in general cannot be conducted on capital, but must depend on credit. Agriculture which is the basic industry of this nation at the present time is greatly under financed. It has a very slow turnover, consequently short time loans at high rates of interest do not appeal to a farmer. The Federal Reserve system helped the nation out wonderfully in the time of war and readjustment but fell short however of meeting the situation before the producer, because the Federal Reserve Bank dealt almost entirely with short term papers in fact three months paper, and it was not until the farmer protested vigorously that at last six months paper was recognized. Bankers in agriculture districts have been slow to recognize such financial procedures which are common in the industrial world, such as the use of trade acceptance papers and warehouse receipts. Many bankers at first frowned on the cooperative movement, but in the past few years they have changed their tactics, as they see the future of agriculture depends upon cooperation more than anything else.

Farmers need a financial policy which will carry them from one season to the next as is true with industry in general. Few farmers have a turn over greater than once a year and some lines of agriculture such as animal industry do not have a turn over oftener than once in three years. That is especially true with live stock breeders, namely the cattle breeders. The farmers have laid their cards on the table, everything they are doing is open and above board. They are simply saying that in justice to their business, they should be able to conduct it on a credit basis, and not entirely on a capital basis, and that they are entitled to the same financial procedure which business in general receives. Not until such a policy is worked out will the farmers cease clamoring for a just financial policy which will be adequate to meet the need of 45% of our population which is engaged in the production of the food which we eat and the raw material for clothes which we wear.

A Transportation Problem

LACK of sufficient rolling stock, delay of transportation due to coal and railway strikes, embargoes, plus too high a freight rate on fruit is a problem which concerns not only the fruit growers and the railroads but every consumer in the United States. The farmers and fruit growers of this country have a definite program before them. The first would be to demand that the railroads be given a free hand to conduct their own business in their own way, that they should have a chance to employ their own labor, to determine the best utilization of the same, to purchase their own fuel on their own terms. Accomplishing this the next step is to demand a reduction of freight rates to the pre war level. There is no excuse for one industry to try to remain on a war status when the great army of producers and consumers must conduct their business on a pre war basis. Fruit Growers of the United States have a right to demand at this time that every step is taken to place the railroads in such a position that they can get back to a pre war basis, and give the service and the rate which was usual at that time. They are getting impatient over excuses the railroads make, due to the fact that they claim they are circumscribed by certain boards, rules and regulations. Let the railroads have a chance to run their own business, and let the fruit growers and farmers deal with these railroads in bringing back more satisfactory conditions in regard to the handling of cars and the tariff to charge for transportation for fruit and fruit products.

Our New Department

WITH this issue of the American Fruit Grower Magazine we are inaugurating a new Department which will appeal especially to our women readers. This Department is to be handled by Miss Hazel Bursell. It will deal with those problems which arise daily in the home. Miss Bursell, was raised on a farm, and became interested in Club work, and later entered the Oregon Agricultural College where she took four years training in cooking, canning, sewing, nursing and similar subjects. This institution is considered as giving one of the best courses of its kind in America.

In addition to a wide training in home economics and domestic science, Miss Bursell also took special training in journalism, so she is unusually well qualified to handle this Department. Being a farm girl, herself she is intimate with conditions under which farm women must work and live. She has outlined an exceedingly attractive program for our readers for the next few months, and we know the wives of our fruit growers will look forward with great interest to the articles which will appear under this new department.

Canned Cider

IN A year with a big apple crop such as this, there is a large quantity of vinegar and cider manufactured. Occasionally so much is manufactured in the fall months, that the price at that time is relatively low, especially if too large a supply is crowded on the market.

In our October issue we had a splendid article on the canning of cider by Ernest H. Wiegand. There are hundreds of canneries in the United States that are idle at this time of the year that could run to good advantage, and can large quantities of cider. After the holidays from then until next summer there will be a big demand for cider, and it can be manufactured and so handled that it would be a profitable proposition. Most apple producing communities should look into the possibility of handling canned cider.

Your Horticultural Society

FROM now to March there is one continual series of horticultural society meetings and horticultural exhibits. Every fruit grower should try to attend at least one such meeting. It would do you good to mingle with your fellow fruit growers. From the program you are apt to get questions answered which have remained unanswered to you for years. At the meeting at Council Bluffs 4,900 fruit growers are expected to attend. Remember, the State Horticultural Society is your society and needs all the support that you can possibly muster in its behalf. Attend its meetings, take part in the discussions, study the exhibits. There are to be held this fall unusually fine exhibits at such points as Seattle, Council Bluffs, St. Louis and Grand Rapids. Visit one of these exhibits—it will pay.

Planting Distances

IN PLANTING trees and plants there are three systems which you can choose from—the square, hexagonal and quincunx. The square system is the most common in use. In using this system the trees are set in rectangles or squares. It has the advantage in that it allows for easy orchard practice and for intercropping with berries or garden truck. In the hexagonal system the trees are set in a hexagon, these trees forming a hexagon with one tree in the center. It really amounts to an equilateral triangle system. It has the advantage in that the trees are equally distant and get fine distribution of light and soil nourishment. It will give 15% more trees to the acre than the square system. The quincunx is especially adapted for fillers. It is really the square system with a tree in the center of each square By this system, however, you can plant at least 75% more trees to the acre than in the square system. In calculating the number of trees per acre by the different systems, square the distance apart between the trees and divide into 43560. This will give the number of trees per acre by the square system. Add 15% for the hexagonal and 75% for the quincunx. The following tables show the number of plants per acre by the different systems:

Dist. Apart ft.	Square	Hexagonal	Quincunx
1x1	43,560	50,300	
2x2	10,890	12,474	
3x3	4,840	5,889	
4x4	2,722	3,143	
5x5	1,742	2,011	
6x6	1,210	1,397	
7x7	888	1,025	
8x8	680	785	
9x9	537	620	
10x10	435	502	
11x11	360	416	
12x12	302	348	
13x13	258	298	
14x14	222	256	
15x15	193	222	
16x16	170	196	
17x17	151	174	
18x18	134	154	247
19x19	120	140	
20x20	109	125	199
21x21	99	114	
22x22	90	104	
23x23	82	94	
24x24	75	87	
25x25	70	80	125
26x26	64	74	
27x27	60	70	
28x28	55	64	
29x29	51	60	
30x30	48	56	83
31x31	45	52	
32x32	42	49	74
33x33	40	46	
34x34	35	43	
35x35	35	41	70
36x36	33	38	
37x37	31	36	
38x38	30	35	
39x39	28	33	
40x40	27	31	54

Odd Distances

Dist. Apart ft.	Square System
1x3	14,520
3x4	5,445
4x5	2,178
4x6	1,815
6x8	907
8x10	544
8x12	453
10x12	453
10x12	363
10x20	217
15x20	145
18x20	121
18x24	100
30x60	24

Success Attends Control Measures in Peach Orchards

One of the best peach crops ever produced in Georgia has just been harvested, it is reported to the United States Department of Agriculture. Very good progress was made in overcoming the heavy curculio infestation. All varieties, through to the close of the Elberta season, have been unusually free from curculio larvæ.

Careful investigations of commercial orchards treated according to the advice of department and state specialists showed that curculio damage was not greater than an average of one wormy peach in each five-eighths bushel basket. In these orchards dropped fruit was picked up and destroyed, and cultivation for the destruction of pupæ practiced, in addition to very thorough spraying.

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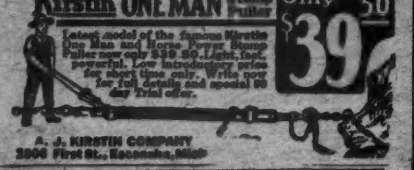

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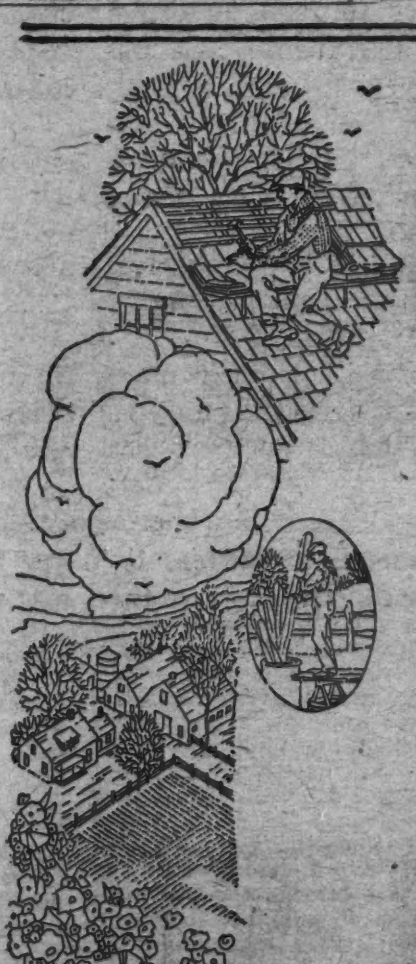

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The entire rear compartment furnishings—seat, seat cushions, back cushions, seat frame, foot rest, carpet and all—can be removed from the car in a few moments.

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IT NEVER LETS GO!
Jem Products Corporation, 612 S. Canal St., Chicago

Orchard Heating in California

(*Continued from page 3*)

what should be expected in this regard.

Measuring the Profitableness

There are two ways of measuring the profitableness of any orchard practice. If it reduces the cost of merchantable fruit per pound it is a profitable practice in one sense. It may do this, however, and the fruit may still be raised at a cost greater than its sales value, so that while the individual practice is profitable the entire enterprise is a financial failure. If one is to judge the enterprise as a whole it becomes necessary to estimate a sales price for the product.

The price per box has generally been higher on frost years than on others, at least whenever the frost damage has been severe enough to materially reduce the total crop. This will continue to be the case until all acreage is fully protected, and with human nature what it is, this time is not likely to come.

One is probably safe in valuing oranges saved from freezing at $1.00 to $1.50 per field box (50 pounds) on the trees. The state average yield is not far from 300 such boxes. A very good crop is from 700 to 1000 boxes. From these figures one can determine the saving to be made by heating, provided they can estimate how often and how severe frosts are going to be.

The average annual liability must be greater than the fixed charge. The annual loss must, therefore, be at least 30 to 50 field boxes per acre to justify equipping. This is only 3% to 5% of a 1000 box crop, but it is 10% to 17% of a 300 box crop. In other words, anywhere from 3% to 17% of the total crop value must be paid out as fixed charges on equipment. This may seem high from an insurance standpoint, but it is to be remembered that protection serves an additional purpose to insurance, and also the frost risk is much higher than the usual fire hazard.

When to "Fire"

The time to begin to "fire" depends in part upon how quickly one can "fire." Thermometers should be carefully watched by someone in various parts of the orchard whenever they start to fall below 32°. 29° is a dangerous temperature for lemons and 28° for oranges. On moist nights frost forms on the leaves and its appearance is taken as a signal for lighting. On very dry nights, however, it is sometimes necessary to fire before any frost is apparent. Half the available heaters are generally lighted at one time and are closely regulated to keep the temperature around 32°

Fires are extinguished as early in the morning as temperatures will allow. All heaters must be filled during the day and made ready for the coming night. One tank wagon and four men with buckets will distribute about 4,000 gallons of oil per day, and one extra man will re-wick the heaters behind each wagon. The torches must also be refilled and left in readiness for another siege.

(*Continued on page 15*)

The Federated Fruit and Vegetable Growers, Inc.

(*Continued from page 5*)

in a wide distribution; they believe this is essential to good marketing. They believe in developing an export market, and the Federated is in a splendid position to develop a big consistent export trade, not one that is merely spasmodic, but one which is developed upon good, sound business lines.

While the main function of the organization must be straight marketing, and bringing about benefits to the producer by wider distribution and skilful marketing, on the other hand the organization can do a great work and is planning to do so by assuming a leadership, by bringing about better conditions in the marketing of fruit. There are so many questions concerning transportation rates, many questions concerning the protection of the industry in regard to national and state legislation, many things which can be done to improve marketing conditions in this country. The Federated must not be expected to do all this work alone, neither must it be expected to accomplish a great work in a year or two. It will take a number of years to develop the service which the organization hopes eventually to assume.

One of the biggest problems before the American fruit industry is to so handle fruit that the consumer can afford to buy it liberally in large quantities at a price the growers can afford to produce it. If this condition can be brought about, and the industry becomes stabilized, then its future is secure.

The Federated Fruit and Vegetable Growers, Inc., is bound in the coming years to play an important part

How Do You Know What to Plant

(Continued from page 6)

mend all varieties having McIntosh blood, or the Wealthy, or some of the Russian varieties or some of the splendid new varieties which are being brought out by the South Dakota, Minnesota and Iowa Agricultural Experiment stations; as well as some which Dr. W. T. Macoun has brought out in Canada.

Heavy Yielders Desired

Choose heavy yielders rather than those which tend to produce light crops. If you have quite a combination including some apples like Jonathan, Grimes, Ortley, Winesap, Delicious and Golden Delicious, you can, by good care and proper management, range from 500 to 1,000 packed boxes per acre. If your varieties are going to consist of Baldwin, Greening, King, Spitzenburg and Newtown, it will be only under rare conditions that you can realize such big figures and perhaps only half that amount or about 200 boxes would be realized. Red cherries, sweet cherries, Bartlett, Bosc and Clairgeau pears will give you very heavy crops annually, under good climatic and soil conditions, coupled with proper management.

Pollination a Problem

Everything being equal, it is better to interplant varieties every two or six rows of a variety and then bring in something else. Peaches and sour cherries are perhaps the exception; they generally seem to be self-fertile, but take apples, for example, the following varieties will rarely set a good crop by themselves. Winesap, Spitzenburg, Arkansas Black, Gravenstein, King, Rome, Rhode Island, Wealthy, Duchess and York. The Winesap often does not produce enough pollen to prove to be a good pollinizer for any other variety. With pears, the Anjou, Comice, Kieffer and Clapp's Favorite are very shy and never should be planted more than three trees away from a good pollinizer. Practically all the Japanese and American varieties of plums tend to be self-sterile. Possibly most of the Japanese varieties will interpollinate each other, and as a rule the Japanese and American varieties are inter-fertile, although there are a few exceptions. With grapes, you need to watch some varieties like Salem, Barry and Brighton. You need other varieties planted with them.

Disease and Insect Problems

Some varieties possibly should be shunned because they are too subject to the attack of insects and diseases; however, this should not be over-emphasized. There are many fine varieties like the McIntosh, Yellow Newtown, Ortley, Duchess, in fact all the Russian varieties of apples that tend to scab very badly, and yet a good spraying schedule will control this scab nicely. Such diseases as Collar Rot are bad on Grimes and much of this we know can be overcome by top-working and there are very few insects but which can be very nicely controlled by an ordinary spraying schedule, so do not over-emphasize too much the fact that a variety is subject to a certain disease unless it has been pretty clearly demonstrated that in case of fire blight and blister canker the variety is very hard to grow. In most cases normal orchard practices will control diseases sufficiently to allow you to grow varieties which you know would otherwise succeed in your community.

We have not attempted in this article to tell you just what you should plant on your farm or in your community. Your state agricultural college can give you great help along that line. We have simply tried to arouse in you an interest in your problem and have made suggestions which will allow you to analyze your own conditions and help you in bringing about the greatest success in your selection of varieties.

GMC

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Chassis only—at the factory

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For general farm use, on hard roads or in rough fields, the Model K-16 one ton GMC provides more pulling power, more speed, and more economy than other trucks of the same capacity.

Moreover, this "Jim-Dandy" truck is built from truck parts exclusively—no passenger car parts used. Consequently it has the sturdiness and enduring performance that is demanded for hauling over all kinds of roads and in all kinds of weather.

The exclusive features of GMC construction, developed from more than ten years of successful truck building, have provided this truck with more continuous performance and lower operating and maintenance costs. Due to its advanced design there is not a single wearing part in this truck that cannot be replaced. Such refinements as Removable Cylinder Walls, Removable Valve Lifter Assemblies, Pressure Lubrication, and Instantaneous Governor action all give to this truck the dependability that is so vital in farm trucking.

In every detail of construction the Model K-16 has been built according to the most approved and most advanced practices.

Magneto ignition, electric lights and starter with conduit wiring entirely separate from the ignition wiring, radius rods, thermo-syphon cooling, oversized brake drums, interchangeable brake rods, complete instrument board, pressure chassis lubrication, cord tires—

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Measured by any standard this one ton truck has no superiors—and its cost, considering its quality, is much lower.

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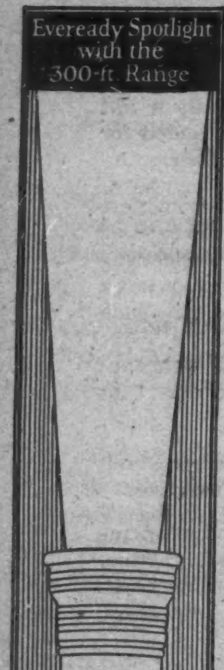

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An Eveready Flashlight is handy for many regular uses that are *not* emergencies! Lights the way about the cellar; up and down stairs; along dark passages; out to the barn, woodshed, and everywhere in and around the home and farm buildings.

Being flameless, an Eveready Flashlight cannot set fire to anything. Prevents losses of property and life by fires from matches, candles, and tipping or exploding oil lanterns. Best protection you can have against loss by fire.

[Eveready Flashlight Batteries fit and improve all makes of flashlights; they give a brighter light and last longer.]

For sale everywhere by electrical, hardware, sporting goods, drug, and auto accessory shops; garages: general stores.

EVEREADY FLASHLIGHTS & BATTERIES

Ramblings of a Horticulturist

(Continued from page 4)

One of the most attractive orchards in the county is up near the northern end, known as the Cherry Homes. There are 140 acres of cherries in this orchard—all Montmorencies. The bearing blocks are about ten years old and are planted 24 ft. apart, possibly a little too far under the climatic conditions in that section. The spraying is done by a huge Mogul sprayer which has a tank holding 800 gallons, the engine having a high horsepower. High arms go out from the equipment so that four lines of hose can be fed and both sides of two rows of trees are sprayed at once. The equipment is set on high iron wheels having broad rims so that it can be used practically any time when needed. The entire 140 acres can be sprayed in 6½ days with this big Mogul which is pulled through the orchard by means of a tractor. There is an additional sprayer equipped for emergencies and the tillage work is done principally with two tractors. The company keeps a truck for hauling cherries from different parts of the peninsula, and also operates a boat which picks up cherries at the south end of the county and brings them to the canning factory which the company owns and operates. Practically all the cherries produced in that section are canned in the Cherry Homes Cannery. They put up their own brand and are exporting most of their cherries to England and other European countries.

Very fine buildings are found at the Home site, including a large dormitory for the pickers which are brought in large numbers from Grand Rapids, Cadillac, etc. Picking ends at this orchard this year about August 15th, which is ten days later than at North Port, only a few miles away. By operating their cannery and using the boats and trucks they can have a season extending from about July 1st to August 15th.

The orchard has installed a big engine for pumping water and also has its own electric lighting plant. The orchard is unusually uniform and of good vigor. The red cherry in that northern section tends to grow broader and more compact than it does to the south.

Grand Traverse Peninsula

On the Grand Traverse Peninsula a few miles north of Traverse City, is a very interesting orchard owned by Titus Brothers. This orchard contains some 6000 bearing cherries and 4000 non-bearing, the varieties being Richmond, Montmorency and Morello. Some interesting dusting experiments are being carried on by the Michigan Experiment Station in this orchard. The experiment will be conducted over a period of three years. The first year the foliage was kept fully as clean by dusting as by spraying. This year probably the sprayed plants are a little superior but the dusted plants show superiority in the size of fruit. The owner felt that the dehydrated dust was better than sulphur dust. While the liquid Bordeaux shows fine foliage it decreases the size of the cherries, the manager believing they were at least 20 per cent smaller on the checked or dusted trees, while the lime sulphur liquid spray seemed to produce cherries at least 10 per cent smaller. The check trees which have been neither dusted nor sprayed were practically defoliated. The disease generally seems to work much worse on the Morello but this was not the case this year. Ordinarily, all the work is done in this orchard by dusting and the owner feels, when he does not delay it too long, he can get very good control. The Morello blocks in the future are all going to be replanted with Montmorency. There are four rows of Windsor which netted $500.00 a year, and as there are only 50 or 60 trees, this is equivalent to about $1000.00 net per acre. This orchard has some good blocks of Hubbardston and Northern Spy apples and some strong and vigorous Clapp's Favorite pears. The ranch is uncommon in that all the work is practically done with tractors and the diseases controlled by dusting.

Conclusions Drawn

In making a study of Michigan horticulture, we can draw some definite conclusions. The west coast of Michigan is ideal from a point of view of climatic conditions and soil types, for the production of a wide variety of fruit. The growing season is relatively long; in fact longer than in most sections of the middle west. The soil is generally light in character, being a sandy or silt loam, but occasionally good strong, clay types are found. The great need of these soils is nitrogen and organic matter. Remarkable results are being obtained from the use of nitrate of soda and sulphate of ammonia. Cover crops such as clover, alfalfa, sweet clover, vetch with rye and oats, can be grown successfully and will help materially in building up the soil.

The growers as a class are very progressive. They have tied themselves up very closely with the agricultural college and advice which has been given out by Messrs. Ferrand and Marshall. They have studied their soil management very carefully and are on the right track. In pruning, most of the trees are far too dense and need more open pruning than has been given them in the past. In thinning, the growers delayed the work too long. Peaches should be thinned while a sharp knife will still cut through the stone. Growers should not be thinning varieties like Jonathan and Grimes in August. Such work should be done in June. There is an attempt in spraying, to use too many guns with a relatively low power, meaning a coarse, driving spray which does not give a proper spread to the spray and which often injures the fruit. The ordinary power outfit should only use one spray gun at a time. Where two or three are used, ten horsepower is required and a disc should be used which means a fine mist-like spray.

There are far too many varieties being grown in the state, probably between 80 and 100 varieties of apples. The State Horticultural Association are on the right track in trying to limit these varieties to not more than a dozen.

In the southern section of the state, such as Berrien and Allegan counties, berries, especially strawberries and cane fruits grow very successfully, while grapes, red cherries and pears also thrive. The pear has one of the greatest futures of any fruit which Michigan is growing today. From Southern Michigan to north of Traverse City, one will find pears grown successfully. Often they line the highway for miles. In many cases very little attention has been given to the fighting of blight. With the introduction of proper blight fighting methods and a change in market conditions, pear growing can be made very successful. A considerable portion of the tonnage of Michigan pears should be packed in boxes. The red cherry is a very profitable fruit for the state, especially in the northern counties. More attention, however, should be given to the control of shot hole. In the central part of the state, in Oceana and Newago counties, the gooseberry industry is an interesting one. Peach growing in the state has been on the decline but should pick up very rapidly. In a few years from now this industry will increase very materially. In the Opekama and Bear Lake sections, red raspberries are being produced very successfully. Their marketing problem has not been properly worked out as yet and some growers stated there was a very poor market for the fruit; nevertheless the very day that statement was made, western raspberries were selling in Chicago at $3.50 a crate. With an increase in the acreage and with some pre-cooling and chilling plants, berries can be pre-cooled for shipping long distances or can be chilled and placed in barrels, for which there is a tremendous demand.

Northern Michigan can likewise grow very fine sweet cherries of the Bing and Lambert type. Michigan is ideally situated for marketing but is poorly organized to get the best

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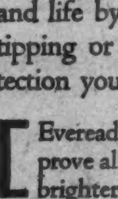

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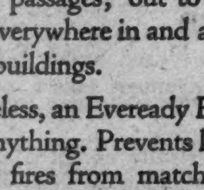

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sults. There are some very successful co-operatives but even most of these need strengthening and other co-operatives should be built up. The state is not organized to market big crops in years when there is a general crop all over the United States, but we are confident this will be brought about in the relatively near future. Land values, both for raw land and developed orchards, are extremely reasonable. Fine investments can be found all over western Michigan. There is no doubt but that this state is going to take a more and more important position in the horticultural world.

Orchard Heating in California

(*Continued from page 12*)

Success in orchard heating depends not alone in adequate equipment but equally in eternal vigilance in its upkeep and use.

One of the large lemon producing companies of California reports that after 8 years service they still have in operation 13,238 of their original 13,500 heaters. Their annual expense for upkeep is about 18 cents apiece. This upkeep consists in bringing the heaters in from the field in the spring of the year, cleaning and inspecting them all, welding those with defective bottoms, and dipping the bowls in asphaltum paint. This care is very essential, and pays well by increasing the life of the heater.

This discussion has dealt largely with the protection of citrus fruits against frost damage. Deciduous fruits and early vegetables are also protected. The frost hazard is confined to a much shorter period of time in these cases. Somewhat cheaper equipment can be used. The economic principles which determine whether or not it pays to protect are the same in any case.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUG. 24, 1912.

Of American Fruit Grower Magazine, published monthly at Chicago, Illinois, for October 1, 1922.

State of Illinois, County of Cook—ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Harry W. Walker, who having been duly sworn according to law deposes and says that he is the Business Manager of the American Fruit Grower Magazine, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, Magazines, Inc., 53 W. Jackson Blvd.

Editor, Samuel Adams.

Managing Editor, C. I. Lewis.

Business Manager, Harry W. Walker.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)

C. A. Tupper, L. A. Sisley, Harry W. Walker, J. E. Montgomery, Samuel Adams, all at 53 W. Jackson Blvd., Chicago, Ill.

Chas. W. Price, 15 Park Row, New York City.

F. G. K. Meister, 501 The Arcade, Cleveland, O.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is..... (This information is required from daily publications only.)

HARRY W. WALKER.
Business Manager.

Sworn to and subscribed before me this 21st day of September, 1922.

A. C. RAMBERGER, Notary Public.
(My commission expires Aug. 4, 1925.)

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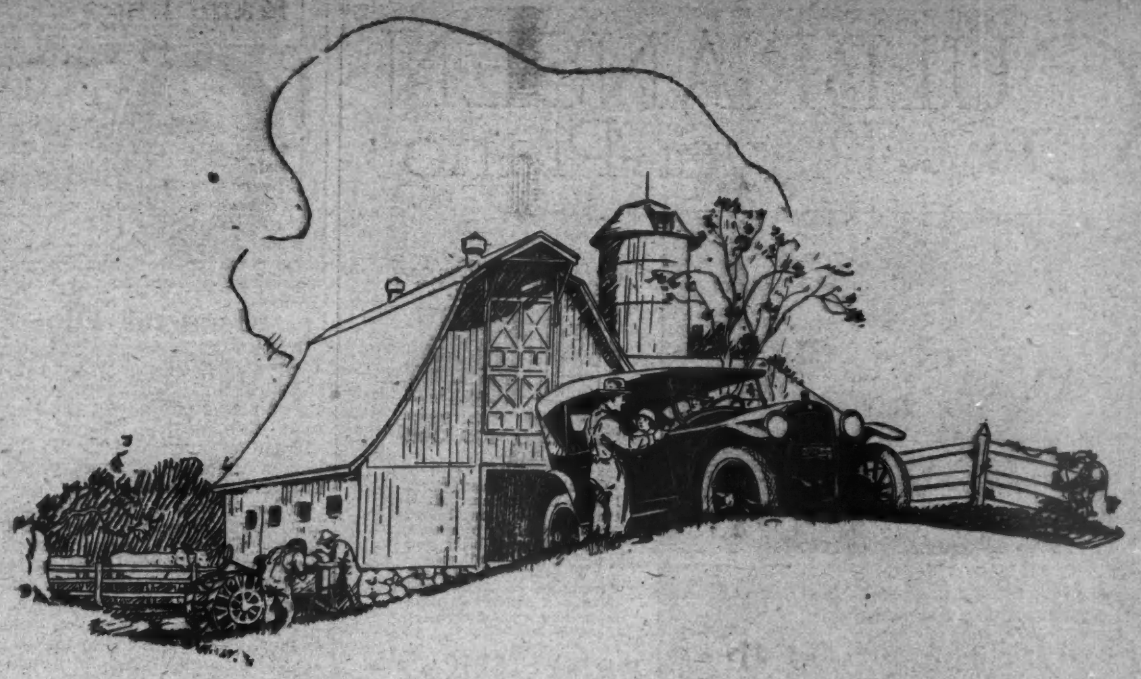

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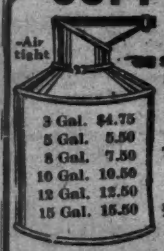

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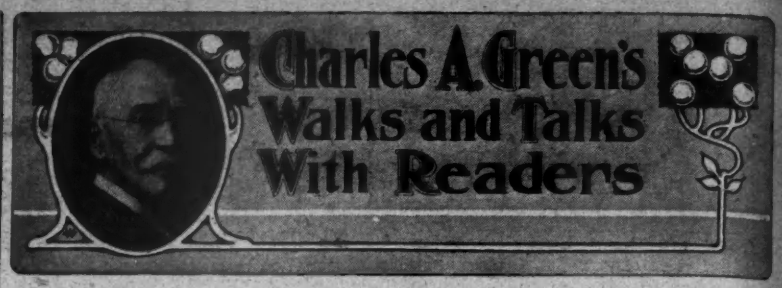

About the Filbert

I WAS glad to see in a recent edition of the Rochester Herald illustrations of the filbert with appropriate text and the portrait of the Rochester man most deeply interested in this attractive nut, which is far less known than the almond, pecan, walnut and butternut.

When I was a boy living near the shores of Honeoye Creek, south of Rush village, I remember finding some wild filberts growing on the northern bank. I could not call these trees. They were about as high as an elderberry bush or somewhat higher. The bush made an attractive appearance and it might be called an ornamental bush, growing, I do not doubt, with age to a height of ten or twelve feet. These wild trees were bearing nuts quite freely. The covering is entirely different from that of most other nuts, being thinner and having the appearance of being folded around the nut.

I have growing at Green's Fruit Farm in Chili several filbert trees. I visited these trees ten days ago and found them well filled with nuts. These trees were imported by my superintendent, Mr. E. H. Burson.

The filbert and the hazelnut are the same. In this country it is known as the hazelnut, but in Europe as the filbert. I have found it hardy in western New York. I am told that one of the wealthiest men in the world has quite a plantation of filberts on his farm near New York city. A small or large group of this shrub would be highly ornamental to any park or private residence and the nuts would be of interest to the children and to all members of the family. To any it would be a novelty.

The filbert seems to thrive best on a sandy loam. It will not withstand the depredations of cattle. The group that I discovered on the shore of Honeoye creek was destroyed by cattle who sought refuge from the heat and flies and broused upon the branches.

Walled Cities

IN MANY parts of Europe the man of large wealth, after he has constructed his dwelling and filled the yard with flowering shrubs and trees, proceeds at once to build a wall around the place high enough to make it impossible for common people walking or driving in the street to see much if anything of the hidden beauty of the place. Such a proceeding seems selfish and must of necessity mar the beauty of the city or village by being enclosed. Occasionally you find in this country beautiful homes walled in with brick and mortar, but for the most part our beautiful lawns are so arranged that the passerby, though a beggar, can enjoy the beauty of the place. Trees, plants and shrubs can be used in planting the borders of beautiful homes so as to seclude them for the most part from the passerby, but usually the owner of beautiful homes is proud of them and welcomes inspection from the street or sidewalk. The modern method of planting shrubs and trees is to plant them on the borders. Plants and shrubs thus planted should have openings through the shrubbery where the beauties of the place can be observed, which is far better than to have a wall of trees extending throughout the length and breadth of beauty spots.

Give Trees Room

WE ARE continually advised to plant orchard trees far apart. This is good advice as a rule when on good rich soil. Where the soil is thin and somewhat impoverished trees can be planted more closely together. For my garden I plant trees three feet apart. They bear when thus planted at an early age, to the delight of the planter. The tops should be headed back each year something as you would a hedge. If, when the trees are larger, you desire to take out every other one you can do so. This applies to grape vines and almost everything for the garden where you have to make the most of a little space and want things to bear soon after planting.

The Canada Red Apple

THIS somewhat rare apple is well known in Canada. It is not a new variety. In size, shape and color it closely resembles the old-fashioned Baldwin. In quality it is far superior to Baldwin, being crisp and delicately flavored. It is supposed to be hardy. The tree is productive. It is a good keeper.

On writing the above I am reminded of something that happened between Charles Downing and myself many years ago. I have considered myself a protege of Charles Downing. He seemed to take an interest in me and he had a desire to help me along during my early years. I have a big bundle of letters from Charles Downing, who was at the head of pomological authorities for many years and whose work consisted largely of a marvelous book on pomology that was started by A. J. Downing, a brother of Charles Downing.

I was writing Charles Downing, asking his opinion about a certain apple. He wrote back asking me to describe the apple. I described it as best I knew how and sent the letter to him, on receipt of which Mr. Downing asked again that I describe the apple. Again I attempted to do so, and again Mr. Downing asked me to describe it. He had set rules for the description of fruits and considered that there was only one way of describing. I cannot remember just the formula, but Charles Downing considered the calyx and the stem important in describing an apple. Next was the depth of the stem cavity and the depth of the blossom end cavity. Then the quality was to be mentioned, and possibly that was to be mentioned first. The color of the flesh must be noticed, also the tenderness of the flesh. The size of the fruit was mentioned, I think, last. Certainly size is not the most important thing in regard to an apple.

Will They Hold On?

THERE are individuals who do not hold on to the job and who are for that reason of but little account. Something the same prevails with certain fruits that do not hold on to the stem or tree. I have before me a basket of grapes that are delicious and beautiful, but they do not hold firmly to the stem. When I lift a cluster the loose grapes drop off on to the carpet. Such grapes will not keep nearly so long as grapes that hold firmly to the stem. There are certain varieties of pears that are inclined to drop from the trees before fully mature. This is a defect of some pears. Certain varieties of apples hold more firmly to the branch than others. It is certainly a misfortune to wake up some morning after a windy night and find the fruit of your orchard lying upon the ground, but if the trees are branched low and the ground is cultivated the crop may not be ruined

High Lights on European Horticulture

(*Continued from page 7*)

though they are now beginning to be experimented with in a small way. Apparently the fertility has been kept up by the use of animal manures, which are hauled onto the land, often in the fall of the year, piled in heaps and covered with soil. After the winter rains have wet the mass thoroughlv, it is then scattered over the land. In their almond orchards various inter-crops are grown by a regular system of rotation. The first year they grow wheat, the second horse beans, the third vetch and barley for hay, and the fourth year of the rotation they give clean cultivation with no inter-crop.

Olive Very Common

Olive trees were to be seen everywhere, chiefly along the roads and property lines. The natives claimed that some of the trees were three thousand years old. Doubting this, I carried the question to the agricultural school in Barcelona and they declared that many of the trees were more than two thousand years old; how much more they did not know.

I had always wondered what the Spanish growers do with their wormy olives, as a high percentage of this fruit is attacked by the olive fly, Dacus oleæ. By dint of much questioning I found that the wormy fruit is regularly converted into oil. Because such oil is very inferior in quality, it is not allowed to be sold in Spain, France or Italy, as I understand. They admitted that there were no restrictions against their exporting such oil to the United States, but of course they never admitted in so many words that they ever did such a thing. I was told that the chief test for oil made from wormy fruit is that it will freeze, or at least will become granular, at low temperatures, while the pure oil will not freeze at all.

Walnuts in Southwestern France.

Almonds are a very important crop in two or three places along the southern coast of Spain, but I did not have time to visit those districts.

Italian Myrobolan Plums

My chief business in Italy, which country I visited twice during the year, was to make a study of the Myrobolan or cherry plum, which serves as a rootstock for most of the plums and prunes of the United States. I was able to see the trees and how they harvest the fruit for the seeds. Practically all of the Myrobolan seeds which come to this country are grown about thirty miles west of Venice. Every little farm or fruit garden has from three or four to a dozen trees. These trees were planted many years ago when it was believed that the grape industry was about to be wiped out by phylloxera. However, a resistant rootstock for grapes was found so they did not have to resort to using the plums for wine making purposes as they expected to do when the trees were planted. Finding that the plums could be sold for

(*Continued on page 19*)

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How Many Objects in This Picture Can You Find Beginning with the Letter "C"

There is Cap, Cornet, Cane. How many more can you find? Write them down and send them in as soon as possible. See how easy it is. Everything is in plain sight. No need to turn the picture upside down. This is a game of skill. Effort and perseverence will win.

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If you send in your list of "C" words and the judges decide your list is the largest which correctly names the visible objects beginning with "C", they will award you first prize in whatever column you qualify. If your list is second best list, they will award you one of the second prizes, etc. Get started *right now!*

Win the $5000 Prize!

You do not have to buy anything to enter this contest and win a prize!

If the judges decide your list of "C" words is best and you have not ordered anything, you will win first prize of $50

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If you send in a $2.00 order for either product, and your list wins first prize, you get . . . $600

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Goods You Get Either one of these products may be ordered to qualify in this contest, but combination orders will not be accepted.

OBSERVE THESE RULES:

1—Any one excepting our employees and their relatives may enter this contest. There is no entrance fee of any kind.

2—All word lists must be received through the mail by E. J. Reefer, 9th & Spruce Sts., Philadelphia, Pa. and envelopes must be postmarked by post office closing time, February 15, 1923.

3—Contestants who have sent lists or orders before February 15th will be qualified for the higher prizes provided orders are received through the mail, postmarked on or before February 20th.

4—Only English words will be counted. Obsolete, hyphenated or compound words will not be counted. Only the singular or the plural of a word may be used, but both singular and plural will not count. Each article or object can be given only one name. Single words made up of two separate words or objects, such as teaspoon, teapot, or teatime will not count. Webster's International Dictionary will be the final authority. Where several synonyms are equally applicable to an object shown in the picture, a person submitting any one of such synonyms will be given credit for one word only.

5—The largest list of words which correctly name visible objects beginning with the letter "C" will receive first prize, and so on down the list of prizes. The winning list will be made up from among the words submitted by the contestants, and not controlled by any predetermined list of words selected by the judges as being the "correct" or "master" list.

6—For each wrong word a percentage will be deducted from the total number of correct words.

7—Two or more people may co-operate in answering the puzzle. However, only one prize will be given to any one household or any one group.

8—You must use only one side of paper. You must number each page and object in a consecutive rotation. Your full name and address must be written on each page in the upper right hand corner. An enlarged picture will be furnished free upon request.

9—The final decision will be made by three judges entirely independent of and having no connection whatever with the E. J. Reefer Company. They will judge the answers submitted and award the prizes at the end of the contest. Each participant entering this contest agrees to accept the decision of the judges as final and conclusive, without argument or question. All answers will receive full consideration, whether or not merchandise is purchased. At the close of the contest, when all lists have been graded, the lists winning first prize and correct list determined by the judges and the names of the prize winners will be published and a copy of such list and prize winners' names and addresses will be sent upon request to any participant who sends us a self-addressed, stamped envelope.

10—An additional prize of not over $600 for promptness, as specified above, will be awarded.

11—In case of ties for any prize offered, each tying contestant will receive full amount of the prize so tied for.

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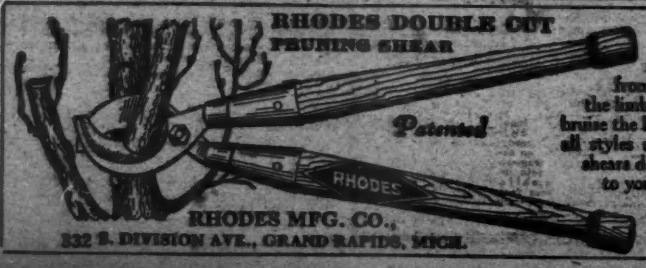
4 H-P. 2 H-P. saws 8-in. logs as well as 5-ft. logs; Light weight; wheel mounted; easy to move. 4 H-P. saws logs, limbs; fells trees. Fast cutting. Start or stop saw while engine runs. Use engine for general belt work.

BIG FUEL SHORTAGE! Make big money sawing and selling wood. OTTAWA quickly pays for itself. Shipped direct from Factory or 9 branches at big saving. Write today for FREE Book.

Free Book

OTTAWA MFG. CO., 1356-D Wood St., Ottawa, Kans., Pittsburgh, Pa.

RHODES DOUBLE CUT PRUNING SHEAR



THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.

RHODES MFG. CO.,
332 S. DIVISION AVE., GRAND RAPIDS, MICH.

WITH THE CO-OPS.

WESTERN New York has had a co-operative movement functioning the past three years, which means a great deal to the Empire state. We refer to the Western New York Fruit Growers' Co-operative Packing Association, Inc. This organization was started some three years ago at a very hard time for a new organization to start, just at the beginning of a deflation and reorganization period, and to have weathered the storm is very creditable.

The idea of the organization came from R. W. Rees, at that time Professor Horticultural Extension of Cornell University, at Ithaca, N. Y., who later resigned to take charge of the operating department of this organization. The General Manager is Nelson R. Peet. The two men making a remarkably fine team, and they are responsible for the great success of this great organization.

This Association has forty units, each one operating a central community packing plant. Each association is a typical incorporated association with its own board of directors. The manager of the local association, however, is directly under the control of the general manager of the central organization at Rochester, who has the power to hire or dismiss any employee at any time. Each one of the forty associations elect from its membership a representative to meet with representatives of other associations. This body is known as the Board of Representatives. This Board of Representatives chooses from its number five, no two of which come from the same county, to form a board of directors. Thus we see the organization in some respects is like the California Fruit Growers' Exchange. The sales and the inspection and supervision of packing houses is centralized. It is not under local control.

The local board, however, has plenty of work to do holding meetings of the members and conferring with the inspectors on grade and pack and purchasing the material which they get through the central office at Rochester, and collecting crop estimates, in visiting other associations to see that the work between all is well correlated. Recently most of the bookkeeping has been centralized at the home office at Rochester, and it has resulted in a great improvement. It is found that from five to seven bookkeepers can do all of the detail bookkeeping of twenty-six associations, and it would be impossible to do this work with separate bookkeepers in each plant without employing a large number.

The fruit from all forty organizations is pooled according to variety and grade. The inspectors, four in number, are constantly watching the grade, and this system is working out very nicely and is fair to all. General Manager Peet has worked out a very satisfactory marketing policy. The North American Fruit Exchange has handled the great bulk of the tonnage. The policy is to sell each week to a certain number of reliable customers, fruit at the market price, rather than to unload large quantities and to speculate with it to a certain extent. The financing of such an organization is interesting. Each member when he joins his local pays in from $10.00 to $15.00 for membership and in addition to that he either furnishes cash or gives a demand note to cover his share of the interest in the building.

Most associations have from eighteen to twenty members, although one has at least one hundred members, so that it takes ordinarily from $500.00 to $600.00 from each member in order to finance the local plant. If the grower pays cash he is given a certificate of indebtedness which can be transferred, but it has no voting privilege. Should he withdraw this is paid off at the rate of one-fifth each year, so if a fairly large number should withdraw from the organization it would not embarrass it financially.

Each grower signs a contract with the local and the local signs a contract with the central. Each member agrees to deliver to his local his fruit to be packed and marketed. There is a period of cancellation allowed each year, when a grower may withdraw in writing between May fifth and tenth, and a local may withdraw from a central any year if they send a notice in writing between the tenth and twentieth of May. It is interesting to note that no local has ever withdrawn from the central, and that when one member has withdrawn from a local over five have been ready to take his place.

Each member gives a note for collateral for operating expenses for the local, and if he violates this contract he has to pay his local $1.00 a barrel and his note is immediately available for cashing at once. The locals are tied to the central by much the same kind of a contract, each furnishing a note that they would surrender should they withdraw.

This organization, in addition to handling a large tonnage of apples also is a heavy shipper of pears and peaches. They are handling between three and four thousand cars of fruit annually and now have about a thousand members in their organization. There is every indication that the tonnage will be increased in the relatively near future to at least sixty. The coming of this organization has meant much to western New York. It has standardized the grade and pack, it has improved the growing methods of its members, as the community pack always tends to interest growers in producing better fruit. It has given much wider distribution of its fruit than New York state generally enjoys, and it has established a marketing system of marketing which is devoid of speculation. It has inaugurated a growers' service which is very helpful to the grower in every way, and has given him an inspection service which has been invaluable to the grower. The Association has come to stay, and the forty community packing plants have been the best contribution in the handling of New York apples of anything that has happened in the past decade.

FRUIT advertising campaigns are attracting considerable attention here in the East, and the American Cranberry Exchange has been advertising their Eatmore Cranberries in the large centers, both through newspapers and by store placards.

The Wenatchee apple growers have launched a strenuous campaign in some of the leading weekly magazines and big daily newspapers in consuming centers.

The Sunmaid Raisin Growers have conducted a vigorous campaign in the papers, calling attention to the fact that raisins are now cheaper. One of the most attractive lines of advertising has been conducted by the Michigan Grape Growers. They have used billboards very effectively. It is interesting to note that all these campaigns are being conducted by cooperative associations. Such organizations are carrying the burden of the distribution and advertising of our American fruit crop.

High Lights on European Horticulture

(Continued from page 17)

their seeds at profitable figures, the trees in all cases have been kept and are worth as much as any other fruit tree and there is no trouble about marketing the fruit. I found seven different types of Myrobolan as determined by fruit characters, and at least thirteen as determined by seed differences. I now have a collection of all these seeds planted for future study in our rootstock investigation.

French Seed from Austria

I found that for years one of the big Italian nurseries has been collecting apple and pear seeds in Austria and shipping them to France and the dealers there have been reselling the seeds to the United States as French stock. How long this has been going on I did not learn, but certainly for many years. I wanted to go to Austria to investigate this seed business at its source, but conditions were very unfavorable for traveling in that country.

I spent several weeks in Germany trying to locate a new source of supply for Mazzard cherry seeds, but did not succeed in finding anything more than a few isolated trees. Too late I learned that they were grown in Austria, but at that time the great railroad strike in Germany was on and by the time conditions became normal again I had to go back to France.

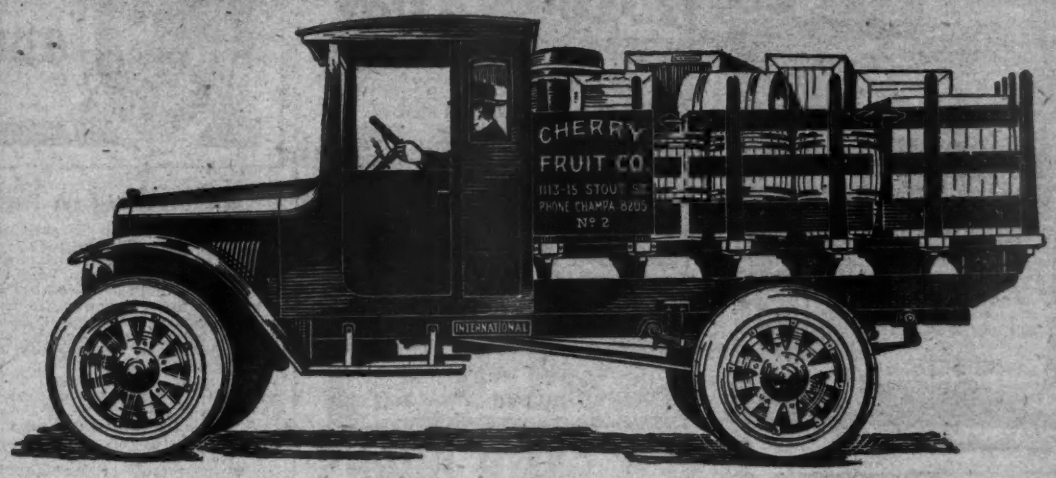
The Apricot Disappearing

In speaking about horticultural conditions in France, I neglected to say that the apricot industry there has about disappeared and their prune trees are going rapidly. In the famous Agen district where our French prune came from, only a few trees here and there were to be seen. After carefully investigating several remnants of orchards, I came to the conclusion that the trees are being killed by the Italian pear scale. The trees are never sprayed and consequently are covered by moss and lichens. Almost invariably I would find this scale insect in great numbers under the moss. Fruit growers there are very unprogressive and were not very much interested in spraying against the scale when they found out how much trouble it would take. I found one man, however, a millionaire glove manufacturer who had become immensely wealthy during the war, who was putting his money into land and was willing to do anything necessary to save his trees. I procured a copy of Professor Hendrickson's circular on prune growing in California for him and when I left he was having it translated into French. He said he proposed to spray his trees right, even though it might be necessary to send to America for crude oil and the right kind of spraying machinery.

In conclusion I may say that they have fruit gardens in France and Italy rather than fruit orchards. Where they did have orchards, the varieties were apt to be poor and the trees poorly kept. The home fruit gardens, on the other hand, were apt to contain the very best varieties and the trees were kept in the pink of condition. The only line of fruit growing in which the French excel is vineyarding. In all other lines I think they could learn a great deal from California growers, and we vary little from them.

English Orchards Good

In England, especially in County Kent, I saw many real apple orchards. The new experiment station at East Malling, between London and Dover, is doing some fine work with dwarf apple stocks. They have developed special strains of Paradise stock which are said to be much superior to anything used previously. This stock has to be propagated by layerage. They are also investigating plum and quince stocks. One of their men, Mr. Grubb, formerly a student at Cornell has some interesting apple pruning experiments under way.



Orchard Profits and the International Speed Truck

JUST as thousands of McCormick-Deering dealers have increased their service facilities with International "Red Baby" trucks, so are many orchardists enjoying successful partnerships with the "Red Baby's" brothers. After all, the service is much the same—in each case the International is helping its owner by doing all important hauling at a low ton-mile cost.

Undoubtedly there are many jobs on *your* orchard farm that could be done better with a good motor truck. Why don't you make it a point to talk the matter over with the McCormick-Deering dealer in your community? You will find the International Speed Truck has a number of features that mean easier, more dependable farm transportation.

International MOTOR TRUCKS

Sizes:

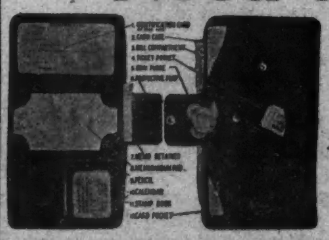
2,000-lb.,	Speed Truck
Model 21,	2,000 lb.
Model 31,	3,000 lb.
Model 41,	4,000 lb.
Model 52,	5,000 lb.
Model 61,	6,000 lb.
Model 101,	10,000 lb.

For the average orchard or farm the Speed Truck affords ample capacity—for heavier work there are other sizes as listed at the left. Each model is sturdily built, and is backed by the International Free Inspection Service Policy that provides free inspection of the truck at regular intervals.

Buy International Motor Trucks for Low-Cost Hauling

INTERNATIONAL HARVESTER COMPANY OF AMERICA (INCORPORATED)
CHICAGO U S A
93 Branch Houses and 15,000 Dealers in the United States

Need a Bill Fold?



Here is your opportunity to secure a genuine "New American Gentleman Bill Fold," same as you may have seen advertised in the Saturday Evening Post. It is guaranteed to be genuine leather throughout, has twelve attractive features combining general utility with quality and is indeed a bill fold you may well feel proud to own.

Yours Without a Penny of Expense

Secure two, three-year subscriptions to THE AMERICAN FRUIT GROWER MAGAZINE at $1.00 each (one may be a renewal or extension of your own subscription) remit the $2.00 to us and we will send you a bill fold free as a reward for your effort.

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POWERFUL AIR RIFLE FREE
500 BUCKSHOTS EXTRA
This dandy rifle and shots are yours POSTPAID, for selling 25 pkgs. Perfume. Easy to sell at 10c. It's easy. Extra Prize for promptness. Order Today. BAY MFG. CO. DEPT. 437 CHICAGO

9 CORDS IN 10 HOURS

BY ONE MAN. It's KING OF THE WOODS. Saves money and backache. Send for FREE catalog No. B 27 showing low price and latest improvements. First order gets agency. Folding Sawing Machine Co., 1005 East 75th St., Chicago, Ill.

Quality Fruit Trees

WE are now offering the finest one Apple and one year Peach Trees at interesting prices. These have been grown in our own Nurseries under the personal supervision of a Harrison backed by 35 years' experience. The buds were cut from bearing trees, assuring trueness to variety.
We are also well stocked with choice Pear, Plum and Cherry Trees, Small Fruits—especially Strawberries, Evergreens, Shade Trees, Shrubbery and Hedge Plants. Write today for Special Price List. Harrisons' Nurseries, Box 88, Berlin, Md.
"Largest Growers of Fruit Trees in the World"

2½-H.P. SAW $77.50

Wanted—Railway Mail Clerks

$135 to $190 A MONTH
Send Coupon Today Sure
MEN—BOYS Over 17

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Franklin Institute, Dept. K230, Rochester, N.Y.
Sirs: Send me without charge: (1) sample Railway Mail Clerk Examination questions; (2) schedule showing places of all coming U. S. Government examinations; (3) list of many Government jobs now obtainable.
Name.....
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Protect Your Trees

FROM destructive rabbits, mice, borers and cut worms—from cultivator bruises and skinning. Eliminate costly replacement and save time lost in growth of young trees by using

Hawkeye Tree Protectors

Quick and easy to attach—wrap this chemically treated wood veneer protector around the tree and tie at top and bottom. It will last for years.

Special $1 Trial Offer

Send us a $1.00 bill and we will ship you 50 Hawkeye Protectors by prepaid parcel post. Try these and you will order more. Send now.

Low prices for large quantities

BURLINGTON BASKET COMPANY
40 Main St. Burlington, Iowa

Also Makers of Hawkeye Fruit Baskets

One Man Saws 15 Cords a Day

more easily with this power saw than he could saw 2 cords by hand. Send today for Startling Facts about this newest and greatest Log Saw ever built. Mechanically operated valves make this far superior to other models. Throttle governor; burns Kerosene or Distillate. Light weight; easy to move. Clutch lever controlled. Saws human way. The World's Standard Log Saw.

NEW IMPROVED 1923 MODEL

Mechanically Operated Valves

OTTAWA LOG SAW

Built in 2 sizes, 4 H-P and 4 H-P. Tree saw fells trees; limb saw buzzes branches. Sold direct from Factory or 9 Branch Houses. Cash or Easy Terms; 30 Days Trial; 10-Year Guarantee. Write for prices.

OTTAWA MFG. CO., 1985 E Wood St., OTTAWA, KANS.

Saws Faster than Any Other Log Saw.

FREE Wood-Sawing Encyclopedia

World's Best Roofing at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Save money—get better quality and lasting satisfaction.

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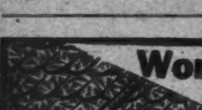
have great durability—many customers report 15 and 20 years' service. Guaranteed fire and lightning proof.



Free Roofing Book

Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 154

LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.

THE EDWARDS MFG. CO.
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FREE Samples & Roofing Book

NEW LAMP BURNS 94% AIR

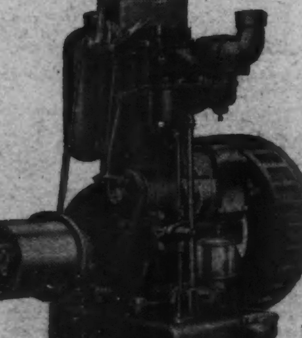
Beats Electric or Gas

A new oil lamp that gives an amazingly brilliant, soft, white light, even better than gas or electricity, has been tested by the U. S. Government and 35 leading universities and found to be superior to 10 ordinary oil lamps. It burns without odor, smoke or noise—no pumping up, is simple, clean, safe. Burns 94% air and 6% common kerosene (coal-oil).

The inventor, B. W. Johnson, 609 W. Lake St., Chicago, is offering to send a lamp on 10 days' FREE trial, or even to give one FREE to the first user in each locality who will help him introduce it. Write him today for full particulars. Also ask him to explain how you can get the agency, and without experience or money make $250 to $500 per month.—*Adv.*

The "COLLIS" MOTOR

Formerly the Piersen



This shows ALL of the "COLLIS" 5 H. P. Motor

THIS is not introducing to you a new or untried power unit but a better product under a new name. As satisfactory power the "COLLIS" is well known throughout the East.

The "COLLIS" 5 H.P. Motor represents the best obtainable in QUALITY and SERVICE. With its close throttling governor the "COLLIS" can be used with satisfaction on any work requiring from 2 to 5 horse-power. As a power unit for sprayer, duster or potato digger it is without a peer. It will serve you equally well on wood saw, binder, milking machine or grinder.

The "COLLIS" Motor comes to you ready to go and goes. No extras needed. Magneto and clutch pulley and roller chain sprocket standard equipment.

Deciding on the "COLLIS" now will mean a saving to you later on. Acquaint yourself with the "COLLIS" without delay.

This letter should convince you:

BATEMAN and COMPANIES, INC., GRENLOCH, NEW JERSEY. *March 21, 1922.*

We have been testing out one of your 5 H.P. Piersen engines for the past year on our experimental farm and after close observation, under severe tests find it to be highly satisfactory. While the engine itself is light in weight, the bearings throughout are very sturdy and should, with proper care, stand up and give long service.

While the engine is water cooled the unique cooling system reduces the quantity of water necessary to a minimum.

Taking it altogether after the year of hard service under close observation, its work has been highly satisfactory and the writer believes that you have an engine that will make its mark with the trade.

Yours very truly, (Signed) LELAND WILLIS, Chief of Experiments.

THE COLLIS COMPANY, Manufacturers, Clinton, Iowa:

Without obligation to myself you may send me your catalogue AB-2.

I am interested in a motor to be used with.................................

NAME ....

TOWN.................... State.................... R.F.D....................

Orchard Problems and their Solution

by **Paul C. Stark**
Associate Editor

Orcharding in Indiana

I am very much interested in fruit growing, especially apples. I have inquired in several states about good locations for an orchard, and have found a place in central Indiana. I know that there are good orchards in Indiana and I would like to get your opinion.

The place I have in mind is 20 acres, somewhat hilly, sand-clay and some spots good corn land.

The fruit I saw there this summer was fine. Less than half of this place has fruit growing, the rest has nothing. It has been a country home and never developed properly.

It is about the center of the state. What varieties of apples would you suggest for this locality?—H. C., Ill.

I AM quite familiar with fruit growing conditions in Indiana and consider that state very favorably located for fruit growing. Even in some of the rougher lands of Indiana where the land is too rough for general farming, raising of grain, etc., fruit growing has proved very profitable. The Indiana fruit is well colored, high quality, and sells well. It is well located as to markets. I have personally visited many of the orchards which are producing splendid incomes. Some of the varieties that are doing best in Indiana are Stayman Winesap, the old Winesap, Delicious, Grimes Golden, Jonathan, and King David. There are, of course, a number of other varieties that are making good but above list includes most of the sorts that are doing exceptionally well in that state. Many of the growers in Indiana have also received good results from early apples and fall apples.

Cherry In Oregon

What ground is best adapted to cherry growing? Is black loam with some gravel good for cherry growing? What kinds are best to plant in regard to pollenization? What are the best Bing pollenizers?—J. N. B., Oregon.

AS A rule cherry trees do best on the lighter types of land, although I have seen some very good cherry orchards on heavy soils. One thing that cherry trees require is good drainage. Do not plant cherry on low, wet land. In the orchards in the west, the Black Republican is used as a pollenizer for Bing and Royal Ann. Never plant Royal Ann, Bing or Lambert together without some other variety for these three varieties are not only sterile but are inter sterile, that is, they will not pollenate each other. At least one-fourth of the plantings should be some pollenizer. The Black Republican is a fair shipper but if a canning cherry is desired the Long Stemmed Waterhouse is about the best, it is an excellent pollenizer, is productive and generally profitable to grow on the coast.

Peach Leaf Curl

I am forwarding you a sample of some unhealthy peach leaves. Three of the leaves are in the first stages, while the other three are fully diseased.—D. A., Michigan.

AFTER examining the sample leaves enclosed, I find that they are affected with what is known as Peach Leaf Curl. This fungus can be controlled by spraying with Concentrated Lime Sulphur at the strength of one gallon to 15 gallons of water. Apply in the spring just before the buds swell.

When To Prune Fall Planted Trees

"Please advise me if you think fall planted trees, one-year whips, should be pruned at time of planting, or later? I expect to plant them some time in November."—T. B. A., Illinois.

APPLE trees planted in the fall, particularly one-year whips, should be left unpruned until early spring just before they start to grow. With large two-year trees, some growers prefer to do at least a partial pruning in the fall so there will not be so much top causing evaporation during the winter. However, in the case of one-year trees, I much prefer to wait until early in the spring, to do the pruning. If your trees are planted in the spring, you can, of course, prune them immediately after planting.

Scab Control

"I had considerable trouble from apple scab on my fruit although I followed the same spraying program as in former years, but the infection was worse this season. We had an unusual amount of rain in the spring and this may have had some bearing on the scab."—R. G. C., Mass:

A GREAT many growers who had formerly had very little trouble from scab in different parts of the country, reported considerable damage this year. In many sections where the Scab infection was so bad, there was very excessive rainfall, particularly when most of the Scab infection takes places.

Even if a few apples in the top of the tree are not thoroughly sprayed and later develop Scab, they will cause later infections on the apples in the lower part of the tree because it is washed down by rain during the summer. The usual method of Scab control will, in most seasons, be very effective. However, in exceedingly wet seasons, it is sometimes advisable to put on an extra spray application (called the Pre-Pink spray) for Scab, and thoroughness in all of the applications is one of the keys to the successful control of apple scab.

The owner of the orchard will not get the success he should have unless he is continually on guard to see that the men who are actually doing the spraying do a thorough, first-class job.

Thinning of Fruit

"My trees bore a tremendous crop this year, but the fruit was only fair size. The trees seem to be in a vigorous condition and healthy."—M. I. D. Indiana.

THE fact that you say your trees are vigorous and making a good growth indicates that there is no trouble from the tree itself, but you had such a big crop that the tree could not bring them all to large size. Many growers have found that thinning the fruit is a paying proposition. This applies not only to apples, but also to peach. By taking off one-third or one-fourth of the young fruit from a very heavily loaded tree, you can accomplish a number of things.

First: You can thin off the fruit that is inferior or shows some scab or other infections. This would leave the perfect fruit and would give it plenty of room and strength to develop.

Second: By the same process, you will get larger sized fruit, and you will get just as many bushels of fruit and larger fruit and it will therefore sell for more money.

Third: By thinning off some of the fruit, you do not have such a heavy drain on the tree and the tree will be stronger and more able to bear a crop the following year, thus tending to eliminate the alternate bearing habit of some trees.

Remember that you must keep the trees in a strong vigorous condition. In thinning peaches, it will pay you to thin so that the fruit will be about four inches apart.

Winter Meetings

Missouri State Horticultural Society and Flower and Fruit Show, St. Louis, November 7-12. H. S. Wayman, secretary, Princeton, Mo.

New Hampshire Horticultural Society, Nashua, N. H., November 8-10. James A. Tufts, Jr., secretary, Exeter.

Second Annual Northwest Fruit Exposition, Seattle, November 11-19.

Maine Horticultural Society, Lewiston, Maine, November 14, 15 and 16. E. L. White, secretary, Bowdoinham, Maine.

Fourth Mid-West Horticultural Exposition, Council Bluffs, November 13-18. R. S. Herrick, secretary, Des Moines.

Vermont Horticultural Society, Rutland, Vt., November 23-25. Ernest H. West, secretary, Dorset, Vt.

Minnesota State Horticultural Society, St. Paul, December 4-8. R. S. Mackintosh, secretary.

Virginia State Horticultural Society, Charlottesville, December 5-7.

New Jersey Horticultural Society, Atlantic City, December 5-7.

Kansas State Horticultural Society, Topeka, Kan., December 5-7. O. F. Whitney, secretary, Topeka.

Michigan Horticultural Society and Michigan State Apple and Potato Show, Grand Rapids, December 5-8. L. A. Lilly, secretary, Grand Rapids.

Indiana Horticultural Society, Lafayette, second week in December. H. H. Swaim, secretary.

Western Nut Growers' Association in connection with State Horticultural Society and exhibit of O. A. C. Horticultural Show, Corvallis, November 23-24. C. E. Schuster, secretary Nut Association, Corvallis; C. D. Minton, secretary State Horticultural Society, Forest Grove.

Illinois Horticultural Society, Champaign, December 19-21. W. S. Brock, secretary, Urbana, Ill.

Spokane Valley Chamber of Commerce to hold Apple Show at Spokane, Otis Orchards Clubhouse, November 13-18.

Idaho Horticultural Society, probably at Boise, first week in January.

Maryland State Horticultural Society, Frederick, Md., January 10-12.

State Horticultural Association of Pennsylvania, in connection with State Farm Products Show, Harrisburg, January 22-27.

New York State Horticultural Society, Rochester, N. Y., January 10-12. Roy P. McPherson, secretary, Leroy.

Eastern meeting of New York State Horticultural Society, Poughkeepsie, February 21-23. Roy P. McPherson, secretary, Leroy.

Ohio State Horticultural Society, probably January 30-31 and February 1. R. B. Cruickshank, secretary, Columbus.

Northern Illinois Horticultural Society, Sterling, November 22-23. L. R. Bryant, president, Princeton; R. A. Green, secretary, Ottawa.

Washington State Horticultural Association, Northwest Fruit Growers' Conference, State Grade and Pack Conference, Spokane, Wash., December 11-15. M. L. Dean, secretary, Wenatchee.

Plant Walnuts

YEARS ago there were great groves of black walnuts throughout the middle west; in fact all over the east. These groves have disappeared. A few days ago a furniture dealer said that it was becoming harder and harder to get good walnut for furniture. It would seem to be a good investment to plant some of these walnuts. There is suitable waste land adapted to walnut growing. They make a most excellent tree around the house and often our country roads could be planted to walnuts to advantage. The nuts furnish a nutritious and attractive food and the wood is valuable. To get the best type of wood, however, the trees should be planted in groves. In a very large section of the United States some species of black walnuts can be grown successfully.

November, 1922

Drawing of greatly magnified pear psylla

This is the third of a series of advertisements on the making of better orchards. Reprints of the first two—"The Advantages of Fall Spraying" and "Fall Spraying Best for San Jose Scale"—will be sent to you upon request. The fourth, discussing control of Blight Cankers, will appear next month. Don't miss reading it.

Now Is Best Time To Control Pear Psylla

If pear psylla are allowed to live until they have laid their eggs in the spring, it is *then* futile to kill them, for it is the young which hatch from these eggs that take their toll from your orchard.

Since it is *too late* to secure control of pear psylla *after* they have laid their eggs, good orcharding will permit of no indefinite delay in spraying. And, as spraying with SCALECIDE in the fall or on warm days in winter *kills* the adults *before* they lay their eggs, *now* is the best time to spray.

The making of *better* orchards practically compels the general practice of fall spraying. Not only does the protection of your pear trees from psylla demand it, but the rescue of your apple trees from the ravages of scale also requires faithfulness to this fall work. For, as explained in our previous advertisements, scale-infested trees should be cleaned up in the fall, and not be allowed to fatten scale throughout the winter at the expense of the tree's vitality. Also the control of peach leaf curl requires fall spraying.

Always bear in mind that SCALECIDE is *"the complete dormant spray"*, and that when you have sprayed your trees with SCALECIDE, you have done all that can be done *at that particular* time by any dormant spray or combination of sprays.

As to the *best* time for spraying: Fall spraying with SCALECIDE controls pear psylla and peach leaf curl. Spring application controls aphis, pear thrips, leaf minor, case bearer and leaf roller. *Either* fall or spring spraying with SCALECIDE controls scale, bud moth, European red mite, fungus or blight cankers from which is spread fire blight, collar rot and root rot. And in addition to controlling these insects and diseases, year after year use of SCALECIDE invigorates the trees.

WE GUARANTEE that, if you will divide an orchard, your worst or best, in two parts equal in general condition, and for three years spray one part with SCALECIDE according to our directions and the other part with lime-sulphur, giving the same summer treatment to both parts, the part sprayed with SCALECIDE will be better than the part sprayed with lime-sulphur—in the judgment of three disinterested fruit growers—or we will refund the money you have paid for the SCALECIDE.

If your dealer doesn't carry SCALECIDE, show him this advertisement—or order direct from us. In any event, write today for the new booklet, "Why SCALECIDE". We will send you also "Spraying the Home Garden", which is considered one of the most helpful treatises extant on the control of insects and diseases that attack trees, shrubs, vines, flowers and vegetables. Address Dep't 11

B. G. PRATT CO. 50 Church Street NEW YORK CITY

SCALECIDE

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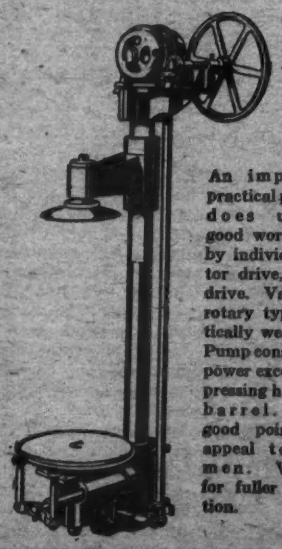
SKINNER HYDRAULIC Barrel Heading Press



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The Fruit Auction Co.

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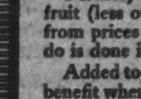

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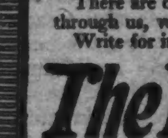

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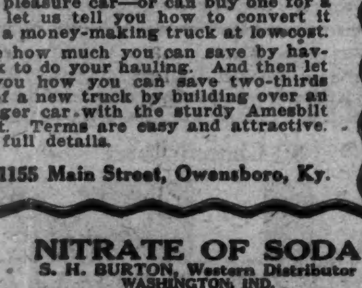

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MARKETS AND MARKETING

THE apple market has taken on a much stronger pull during the past thirty days. The government figures published for September show a material shrinkage in the apple crop. The figures now being 31,639,000 bbls., as compared to over 33,000,000 in July. Many believe the government figures are still rather high.

The great reduction in the commercial crop, coupled with a car shortage, is having a good reaction on the market. It is also becoming more and more apparent every day that the varieties which are naturally late keepers are not going to be in over supply.

The apple crop of the Pacific Northwest has been tremendously reduced, owing to warm weather during August and September; the worms could not be well controlled, and there is a very large percentage of wormy apples, which are handled as culls. Reports coming from such places at Wenatchee show a tremendous reduction; in fact Wenatchee is estimating now on not shipping over 10,000 cars.

An estimation of the Pacific Northwest crop shows a reduction all the way from 5,000 to 10,000 cars over the estimate of August first. Coupled with this there is a relatively small percentage of extra fancy fruit. The warm weather seemingly preventing the development of the highest degree of color. In the East the commercial crop has been greatly reduced. In several sections there has been a rather bad outbreak of San Jose scale, which has showed especially bad on Rhode Island Greenings. Scab is bad on many varieties extending from Maine southward. And in parts of Virginia and adjoining states the cedar rust is unusually bad. Hail storms have done an unusually heavy amount of damage in several sections of the East, so that the commercial crop of number one apples is greatly reduced.

The reduction of crop has been reflected in the attitude of buyers, in the prices received and in the tone of the market. Before harvest time many organizations in the Pacific Northwest had sold over 30 per cent of their Jonathan and found that they had oversold the extra fancy on some varieties, such as Winter Banana, King David and Delicious. In the East the market has continually strengthened; some growers have refused $3.25 for Greenings, expecting to get $3.50 to $3.75, while men in close touch with the game figure now that within a relatively short time Baldwins will at least touch the $4.00 mark.

Colorado boxed apples, well colored, brought in eastern markets good prices for the middle of October, extra fancy bringing $2.75 and fancy $2.50.

THE peach crop was probably the biggest in the history of the nation; 55,000,000 bushels of peaches is an unusually large crop. The southern peaches from Georgia, Arkansas and other southern points did unusually well. Arkansas sent for the first time a large number of cars of boxed peaches. These were packed similar to the California and Colorado pack. Twenty cars alone were sent to Chicago, and they were very favorably received in the market.

North Carolina sprung a surprise on the northern peach market this year. They had a large crop of fine Elbertas. They were well sold and distributed, having access to the splendid marketing organization of the Florida Citrus Exchange. North Carolina placed in the North these fine Elberta peaches at about the time the northern Carmen were on the market. The result was the people generally preferred an Elberta to a Carmen.

Most of the northern peach growers did fairly well. New York, however, had its crop of Elbertas mature during the very hot weather in September. It was impossible to get cars and as a result a very large percentage of the crop dropped to the ground before it could be moved, so there was a heavy loss in that section.

Rocky Mountain peaches, which at one time looked as though they would be a total failure, finally did fairly well a wide distribution being secured through the southern states.

EASTERN grape prices on the whole have remained firm; prices have ranged from as low as $60.00 to as high as $90.00 a ton, with a large percentage of its crop going at $75.00 to $85.00. The entire eastern crop has moved out very nicely into a wide district, and the channels of consumption are taking care of the crop as fast as cars can be obtained to move it.

The California wine grape situation is somewhat complicated. About the middle of October the Union Pacific placed an embargo on box cars for shipping grapes. Owing to a shortage of refrigerator cars considerable tonnage of wine grapes are being shipped in box cars. Despite the shortage of cars, however, more California grapes have been shipped up to the first week of October than went through a year ago. Over 19,000 cars have been shipped as compared to about 17,000 cars a year ago. The crop in California, however, is much larger than last season, and from present indications it will be impossible to get all of these grapes to market, as there is not rolling stock enough to move them. This, coupled with the fact that cars do not move as rapidly as last season, should result in some loss.

THE Florida orange crop this time looks to be heavier than early estimate, owing to a very fine fall rain. These rains are producing larger oranges and will increase the crop somewhat. This will, however, slow up maturity to a certain degree. However, a nice grade of Parson Brown oranges and grape fruit are now rolling to all the large centers.

THE California Walnut Goods Association has named their opening price for walnuts. The prices are considerably under last season, owing to the fact that California has a large crop and there will be heavy importations, especially from the Orient. The trade is accepting the prices very favorably. Fancy budded are quoted at 26c, No. 2 budded at 22½c, No. 1 soft shells 22½c and No. 2 17½c a pound. Early orders which were booked are being confirmed at the rate of 100 per cent. The present crop has been exceeded only one year and that was in 1919. It is now estimated at 50,000,000 pounds. It should be worth between $11,000,000 and $15,000,000.

THE prune market during the month of September passed through one of the customary lulls. The first reaction on the prices named by the California Prune and Apricot Growers was not very favorable, but this feeling passed rapidly and the prices have even been advanced over the opening, and the prunes are going in a normal way. Indications are that the California Prune and Apricot Growers' Association named prices after all which were in keeping with general conditions. The canned fruit market has been rather slow, in fact at times has been in a bad way, but is improving lately.

The Orchard Home

A Section for All Members of the Family

Edited By MARY LEE ADAMS

What's Wrong with Democracy?

IS THERE anything better to offer in the way of government than democracy? Most Americans think not, yet they are not satisfied with the workings of our government. The theory is all right, it's the practice that leaves much to be desired. So when you ask "What's wrong with democracy?" the answer is—"You are, partly at least."

Are you going to vote in the November elections? If you do this according to your earnest convictions, it is well. So far so good. But elections cover a very short period of time. Any candidate can pose as a paragon of virtue for the period of a campaign.

Are you going to keep in touch with the performances of those you voted into office? Will you note whether they carry out their campaign promises? Are they true to the principles for which you elected them? Do they stand by the right? Do they initiate legislation for the betterment of conditions, for the comfort, security and prosperity of their constituents?

Will you try to judge whether they are actuated by principles of justice, humanity and progress, or simply by the wish to "get in with the right crowd" in the hope of re-election? If you follow their political career, and not otherwise, you'll know whether, when the time comes, you should vote to return them to office.

Moral Momentum

I'D LIKE to claim credit for originating that term—moral momentum—but I heard it first recently in the course of an exceptionally interesting and impressive sermon. The words arrested my attention, they are so hopeful, yet stern in their demand.

The theme was almost hackneyed, being that of the three children in the fiery furnace. It was, however, so vividly developed that I seemed actually to see Shadrach, Meshach and Abed-nego standing proudly before the tyrant who threatened them with horrible death if they refused to bow down before the golden image which he had set up for worship. They knew the penalty of disobedience but, quite simply, they replied that their God could rescue them and they believed he would do so, but, in any case, "Be it known unto thee oh King, we will not serve thy gods."

Whence came the courage thus, without a moment's hesitation, to defy death and torture? How easy to bow the knee in semblance of worship while remaining inwardly true. But behind these young men was the background of a life lived in the service of One whom they believed to be the only true God. It was unthinkable to affront Him in the manner ordered. All their years they had been accumulating "moral momentum." Given the necessary impetus, any soft object will penetrate the most resistant. These three were young and soft, but the impetus of a consistently righteous life carried them triumphantly into the very jaws of the white-hot furnace, a noble example to all posterity.

You know the lovely legend of how, accompanied by a shining presence, they walked unscathed through the flames. But that finale is not needed to force upon our attention the fact that if we would not be found wanting in the day of trial, we should so school and rule our daily lives that we shall inevitably stand firm when the immortal moment comes in which each one must decide whether he shall compromise his ideals or worship his own God in the manner that commends itself to his conscience.

The Wings of a Bird

OH! IF man but had wings how glorious life would be! And the aeroplane gave him wings. But the use of them does not come easily to ordinary people. It requires a quick brain and a strong nerve to manipulate the engine of the man-made bird. The majority of us are still left right here, with our feet planted on the ground, sighing for wings.

Women particularly, balk at the management of the mechanism. The most extreme feminists rarely advance the claim that women rival men in a talent and taste for inventing and manipulating machinery. Some daring women aviators have appeared, but Sallie and Susie content themselves with walking or driving a speed car or, at the most, with being carried through the air by a skillful pilot.

Men who have passed the heady rashness of youth, and women of all ages are watching eagerly the development of the Glider, the motorless plane which has lately performed some startling feats. To us outsiders, it looks as if here at last may be the promise we have so longed for, of something that will let us fly without too much complication and danger.

Just think of the excitement when individual planes become so ordinary that we may wake up any Christmas morning to find one in our stocking. Wouldn't that be simply grand? Let us revel in the thought of this possibility until some crude iconoclast comes along and shatters our dream by telling us that gliders demand of the pilot more skill and courage than the roaring mail plane which we watch humbly from below.

A King of Peasants

WHILE I was away from home last summer I met a number of people whom we might be justly proud to call fellow countrymen. One of these has a special claim to the sympathy and admiration of everyone whose interests are bound up with the soil.

This is Ernest Laur of Switzerland, who makes his headquarters in the small, ancient town of Brugg, and there works out plans for the benefit of Swiss farmers. For 25 years he has labored in their cause, until today he is known far and wide as the "King of the Swiss Peasants." A king who rules over and works along with subjects who love and revere him. A king who has raised Swiss farmers to such a power in the land that, while they have no majority in the government, they are yet in a position to ask and to get pretty nearly anything they wish.

After seeing the man, one feels no surprise at the achievement of his life work which has so improved the condition of agriculture and agriculturists in his country. One is even prepared to learn that he holds the respect and admiration of those whose political and economic opinions are at variance with his own. It is impossible to see and hear him, and suspect him of any egotistical aims, and it is the glory of his reputation that he is invariably actuated by disinterested motives.

His personality inspires confidence. The head of this King of Peasants is nothing less than noble, and is vaguely reminiscent of Him who was once hailed in scorn as King of the Jews. His manner is quiet to gentleness, a little tired, perfectly assured and utterly simple. Really big people seem always to have something of fine simplicity about them.

Not every farmer could be an Ernest Laur, but in many places there are potential leaders who, if they would but consecrate themselves to the task unselfishly as he has done, might go far toward leading the farmers of America out of the Land of Bondage.

Calling Into the Wood

"AS YOU call into the wood so the sound comes back to you." We shout, and echo returns the tone of our own voices to our ears. In some moods, we feel that this world is a peevish place full of grouchy people. Again, after a good rest or a pleasant happening or a joyful holiday, we believe it's a pretty good old world after all, everyone ready to smile with us.

It's too much to expect to maintain a sunny mood invariably, but when one can't be sunny one may at least avoid impatience and show consideration for others. And the patience and consideration will come back like the echo from the wood.

Those who are constantly complaining of their neighbors, would do better to spend a little effort in trying to find out where they themselves may have offended.

A NEW YORK surgeon now makes use of radium in removing tonsils. The radium burns out the diseased tissue in a completely painless operation of twenty minutes' duration.

Why should any life lack romance. An adaptable young lady assures us that she can fall in love as often as she finds a good subject to work on.

"MADAME," gasped the exhausted man milliner, as he posed the 100th marvelous creation upon the head of the portly customer, "Madame, if you don't like this hat you're not a well woman."

3061. A New Set for Miss Dolly.

This attractive group comprises a simple dress, good for lawn, batiste, silk or dimity, a stylish cape that may be developed in satin, flannel, velvet or silk, and a bonnet to match the cape or to be of lawn, velvet, or embroidery.

The Pattern for this set is cut in 5 sizes for dolls: 16, 18, 20, 22 and 24 inches in height. Size 16 will require ⅝ yard of 36-inch material for the dress, ⅝ yard of 40-inch material for the cape and ⅛ yard of 20-inch material for the bonnet.

A pattern of this illustration mailed to any address on receipt of 10c in silver or 1c and 2c stamps.

4152. A Stylish One-Piece Model.

Serge and plaid suiting are here combined. The fronts meet over a panel. The sleeve is in bell style. This model makes a splendid school dress.

The pattern is cut in 4 sizes: 6, 8, 10 and 12 years. A 10-year size requires 2¾ yards of 44-inch material. To trim as illustrated will require 1 yard of 32-inch material.

Pattern mailed to any address on receipt of 10c in silver or stamps.

4156. A Dainty Dress for Dance or Party.

Soft fabrics such as Canton crepe, or crepe de chine are best for a dress of this kind, but it is also nice for voile and organdy. The drapery may be omitted on the skirt as well as on the waist, as shown in a smaller illustration and the sleeve finished in short or wrist length. Picot or hemstitching is simple and effective for decoration.

The pattern is cut in 4 sizes: 8, 10, 12 and 14 years. A 10-year size requires 4¼ yards of 32-inch material.

Pattern mailed to any address on receipt of 10c in silver or stamps.

4196. A Smart Version of a Popular Style.

Kasha cloth or Canton crepe would be suitable for this model. It has simple lines. The plait fullness at the sides gives additional width to the skirt. This is a model that is easy to develop.

The pattern is cut in 3 sizes: 16, 18, and 20 years. It requires 4½ yards of 40-inch material for the 18-year size. The width of the dress at the foot with plaits extended is about 2½ yards.

Pattern mailed to any address on receipt of 10c in silver or stamps.

4160. A Stylish Afternoon Dress.

This is a splendid model for mature figures. It features the low waistline and surplice closing now so popular. The sleeve may be finished in ¾ or in elbow length.

The pattern is cut in 7 sizes: 36, 38, 40, 42, 44, 46 and 48 inches bust measure. A 38-inch size requires 4¾ yards of 40-inch material. The width of the skirt with plaits extended is 2½ yards.

Pattern mailed to any address on receipt of 10c in silver or stamps.

4162. A Good Service Dress for Slender or Stout Figures.

Comfortable fullness and slenderizing lines mark this desirable model. The back extends over the fronts to form yoke sections to which the fronts are gathered. This is a good style for percale, gingham, gabardine, and flannelette. The sleeve may be in wrist length or short, as illustrated.

The pattern is cut in 7 sizes: 36, 38, 40, 42, 44, 46 and 48 inches bust measure. A 38-inch size requires 6¼ yards of 32-inch material. The width at the foot is 2¾ yards.

Pattern mailed to any address on receipt of 10c in silver or stamps.

4196. A New Doll Set.

The little doll mother may not only make dolly's clothes but also the doll from the models supplied herewith. The body may be of drill, unbleached muslin, oil cloth or sanitas, with a stuffing of bran, kopak, or cotton. Eyes of shoe buttons, nose and lips of yarn, or, the features may be embroidered or painted.

Dressed as a clown this doll will be very attractive. The suit may be of calico, cretonne or scraps of silk or satin. One or two colors of materials may be used. For the Rompers—cretonne or gingham is pleasing. Dolly will be so glad of the dear little pockets in her rompers, and "Pierrot" the clown will do all sorts of tricks in his comfortable costume if his arms and legs are fastened so as to be movable.

The pattern comprising the Doll and the garments, is cut in 3 sizes: Small—12 inches, Medium—16 inches, Large—20 inches in length. The Doll requires for a Medium size ½ yard. The rompers ⅞ yard. The Suit and Hat 1¼ yards of 27-inch material.

Pattern mailed to any address on receipt of 10c in silver or stamps.

Chats with Fruit Grower's Wife

By Hazel Bursell

Seven Things to Remember

THE elusive vitamines—discovered by scientists, written and talked about by teachers, and just at present exploited by advertisers! Between them, the three vitamines, the "calories," and the "balanced rations," almost had you worried, didn't they?

Well, don't worry about them a minute longer! I'm going to give you seven simple, easy-to-follow rules, and if you remember them when planning your meals for the day, you'll have a balanced diet with all the necessary calories, minerals, vitamines and what not. The suggestions given below are the result of years of study and experiment and constitute "dietetics" in plain ordinary language.

1. Each day have some cereal food in the diet, as breakfast cereal and breads.

2. Each day have at least one of these—meat, fish, eggs, cheese, beans, or milk. Beware of too much along this line, one dish of any one of these being sufficient for one meal.

3. A child needs at least one pint of milk a day, and more will be good for him. There is little or no excuse for farm children not having sufficient milk. Where, may we ask, is there a better or more profitable "market" for surplus milk than in developing strong, active boys and girls?

4. Have at least one vegetable besides potatoes each day. Farm gardens contain a large variety of choice vegetables. Use 'em!

5. Serve a fruit every day. Readers of the AMERICAN FRUIT GROWER MAGAZINE should have no difficulty on this score.

6. Each person should have from 10 to 12 glasses of water per day. The old idea that drinking water at mealtime is harmful has been done away with, though of course a large amount of very cold water is not desirable.

7. Have one uncooked food each day, either a fruit or a vegetable. Raw fruits are always popular and beneficial, while uncooked vegetables are perhaps best in salads. Two of the three vitamines are destroyed by cooking.

Do ye these things, and the vitamines shall be added unto you, without further worry on your part.

Feeding the Child of School Age

THE first "must have" in feeding school children is regularity! The child must be brought to a regular three-meal-day schedule—morning, noon, and night plus lunches if necessary—and kept there.

If he or she has a good breakfast, a warm substantial lunch and supper by 6. p. m., then no after-school lunch is needed. If on the other hand, late suppers and cold lunches are eaten, a light lunch on return from school is all right.

The growing boy and girl needs plenty of wholesome food, simply prepared and appetizingly served. The farm housewife's menus need never lack for variety for she has a wide range of fruits, vegetables, and meats from which to choose. The child needs good home-cooked cereal and milk. He needs plenty of fresh vegetables and fruits, especially more green vegetables. He needs a certain amount of meat or meat substitutes such as cheese dishes, cottage cheese or fish. Eggs are a valuable food. Lastly he needs plenty of water.

Simple desserts should be the rule for children—custards, puddings, gelatin desserts, fruits, simple cakes and cookies, and well-made ice cream. Good pie may be given occasionally as a special treat, but should not come on top of a heavy meal.

Be careful of the kind of candy you give them. Fruit drops are all right if not highly colored. Candy should be eaten at meal time as the concentrated sugar is hard on the stomach if eaten by itself.

School Lunches

DO YOU feed your child cold pancakes for lunch?

Some women have been known to do this very thing, and the student's report card usually showed it in lowered application and grades. It has been proven that improper lunches are one cause of seeming stupidity in school work. The extra thought and work expended will be more than repaid in satisfaction to the mother in the long run.

The Mother should plan the lunch for the day, but there is no reason why the children can not be taught to pack their own, and do it neatly and attractively. Find some way to make them think it is a privilege, and not an added chore. Get them to take pride in their baskets, as by vieing with each other for the nicest packed lunch.

A lunch basket may well contain two or three sandwiches, varied from day to day, a bottle of milk, and some kind of fruit or simple dessert as custard, cookies, or sponge cake. An egg "cooked" not "boiled" for 10 minutes at a temperature below boiling point is good with a meatless lunch.

The sandwiches may have meat, cheese, egg, jelly, preserves, or nut and raisin fillings, or may be just plain bread and butter. Graham, rye, and nut bread will be relished occasionally. The writer prefers at least one bread and butter sandwich each day. Fresh apples, grapes, and canned fruits go well with the school lunch.

One container is all that is advisable in one lunch. If more, some may get broken.

The basket should be one with ventilation and one that can be easily sterilized by scalding. Tin pails should have small air holes punched in the lids, while leather ones are not recommended at all. Splint baskets are good.

The Home Medicine Chest

THE farm home as well as every other home should have a medicine chest. It should be put in a cool dry place and should be locked and out of the reach of children. A built-in chest is, of course, the handiest, but a clean box with a door and a set of shelves will serve the same purpose.

The time now between the fall harvest and the spring planting is on most farms the slack time of the year, and offers to the thrifty farmer an ideal time for remodeling and repair work. Now is the time for Mother to get "Dad" or son John, who will take no little pride in the work, to put in a medicine chest. Then the next time she wants the iodine or adhesive tape, she'll know just where to find it.

The actual medicines to be kept in the chest will vary with each family, but disinfectants and antiseptics should always be included. A 5 to 7 per cent solution of tincture of iodine, tightly corked with a rubber stopper serves as a good antiseptic. Castor oil, salts and cascara are good cathartics. Aromatic spirits of ammonia and a salve, such as ungentine, should be kept on hand for emergencies.

Among the appliances should be a hot water bottle, a graduated measuring glass, medicine droppers, a teaspoon, scissors, needles, and white thread. A roll of bandages and

sorbent cotton or sterilized gauze are necessary. Pieces of old linen or muslin sterilized by washing and ironing should be kept in readiness.

Kitchen supplies that may well be kept in the chest are olive oil, soda, ginger, mustard, flour, and salt.

Medicine which has been prescribed for one member of the family during an illness should not be kept in the supply closet in order to be given to another member. All bottles should be tightly corked to avoid evaporation and deterioration. In most cases it is well not to keep a large supply on hand. All bottles should be carefully and plainly labeled.

Poisons should never be kept in the chest with the other medicines. A separate shelf or compartment would not be a bad idea.

Apple Desserts

THERE are literally dozens of delicious things that can be made from apples with very little trouble to the busy housewife. Of course everyone makes the old stand-bys, apple pie, baked apples, and apple sauce. A few new tried and trusted apple recipes are given below, and more will be given from time to time. They sound so good as I write them down, that I'd like to get right up from my typewriter and make some now!

Apple Jelly Cake

1 cup sugar	1 cup milk
4 tablespoons butter	2 cups flour
1 egg	3 teaspoons baking powder

Melt butter, add sugar, and egg well beaten. Sift flour and baking powder together. Add flour and milk to the mixture, stir well and bake in two layers. Bake in a hot oven.

Filling

2 large grated apples	1 cup sugar
1 egg	Grated rind and juice of 1 lemon

Boil together the apple, lemon and sugar until thick and clear. Add beaten egg, cool, and spread between the layers. Use boiled frosting on the top.

Apple Rice Mold

Soak 2 tablespoons gelatin in 2 tablespoons water and dissolve in ½ cup boiling water.

Mix together 2 cups cooked rice, 2 cups cooked apple pulp (run through a sieve), 1 teaspoon cinnamon, 10 dates chopped fine, 2 tablespoons lemon juice, 3 tablespoons sugar or sweeten to taste. Add the gelatin and let set till firm. Serve with chocolate sauce of whipped cream. (Serves eight.)

Apple Tapioca

¼ cup minute tapioca and cold water to soak	½ teaspoon salt 1 tablespoon lemon juice
2½ cups boiling water	¾ cup sugar 2 cups finely cut apples

Soak the tapioca one hour in cold water to cover, drain, add boiling water and salt, and cook in double boiler till transparent. Arrange apples in buttered baking dish, spread sugar over thin, pour over tapioca. Bake in moderate oven until apples are done and light brown. Serve with sugar and cream.

Apple Dumplings

Crust—	3 teaspoons baking powder
3 cups flour	¾ teaspoon salt
6 tablespoons lard	8 tablespoons milk
6 tablespoons butter	

Mix like pie crust. Roll out ¼ inch thick on a floured board and cut into squares large enough to cover an apple. Wash, pare, and core apples. Fill cavity with sugar and add a small amount of nutmeg and butter. Fold the square over this and stick edges with cold water. Bake till apple is done and crust is brown. Serve with cream and sugar.

Dried Apple Ice Cream

3 cups apple pulp (cooked dried apples run thru a sieve)	2 teaspoons vanilla 3 egg whites stiffly beaten and added after ice cream is set
3 cups thin cream	1 cup finely cut nuts
1 cup sugar	
4 tablespoons lemon juice	

Mix and freeze as for plain ice cream.

Apple Royal

Pare and core large well-shaped apples. Fill the center with marshmallows and bake in a sauce made by cooking ¼ lb. marshmallows, ¼ cup confectioner's sugar, and ½ cup boiling water in a double boiler till smooth. When done roll in shredded cocoanut and serve cold in sherbet glasses with grape juice. Place a marshmallow upon the top of each.

*All measurements are level.

Simple Textile Tests

DON'T let the dry goods merchant sell you fiber silk for silk or mercerized cotton for linen—at silk and linen prices. You can easily perform a few tests right while examining the material which will help to determine the value of the piece.

Take Silk: Most real silks are soft to the touch, and do not wrinkle when squeezed in the hand, while fiber is stiffer and has a tendency to wrinkle. Fiber takes more brilliant and more beautiful colors than does animal silk, and will wear quite well if not put in hot water in laundering. Fiber is usually a coarse, open weave material.

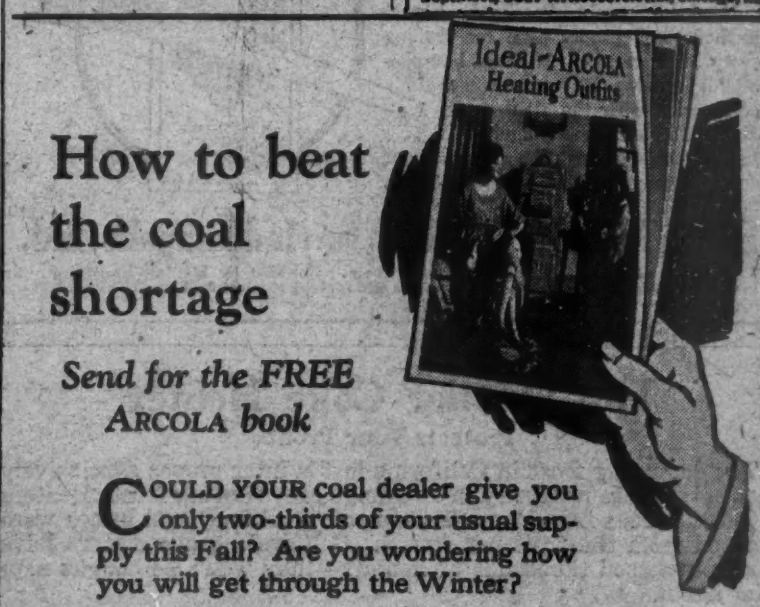
Taffetas get their stiffness from "loading," each tiny fiber being soaked in a tin-clay mixture till full of it. A large amount of this filling makes the material "crack." You can easily obtain a sample, and touch a lighted match to the corner. If it sort of melts as it burns, it is not heavily loaded. If it leaves a netting-like frame-work after the silk is burned out, it has too much loading and will not wear well.

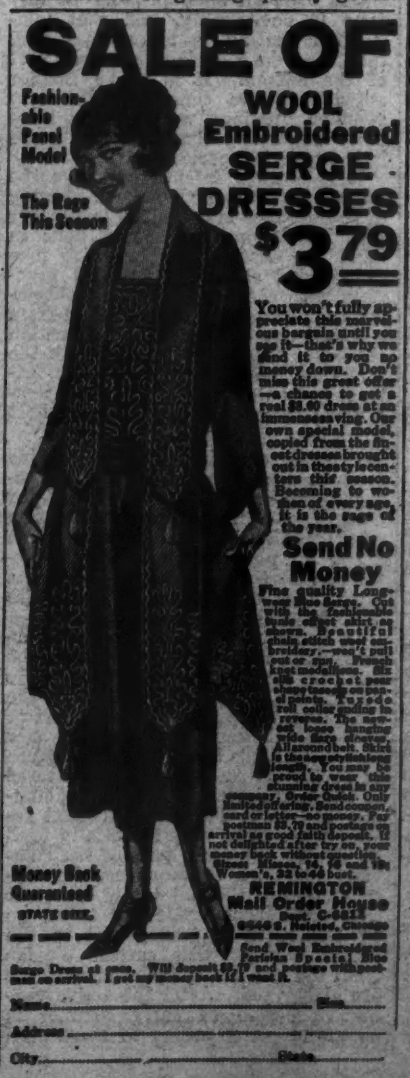
Wool has a scratchy, wiry rough feel. Pull a few hairs and note their length—if less than an inch or so, you may feel pretty sure that you are getting shoddy. A cotton-wool mixture is heavier for the same thickness than is all-wool. Wool has a peculiar characteristic smell when burned, and does not burn easily.

Linen is coarse in weave, and characterized by an unevenness of thread. Pure linen never has any starch, which may be detected by rubbing between the fingers. If starch is present it was put in to hold down the fuzz of the cotton till after it was sold. After rubbing the fuzz will show up when the piece is held edgeways to the light. Cotton table cloths are hard to launder, hard to iron, and they get yellow with age. It pays to buy linens only from reliable dealers who guarantee their goods. Never trust an agent unless you are an expert judge.

There is no need to test for cotton. It is the cheapest textile fiber and consequently the one that manufacturers try to camouflage to resemble silk, wool, and linen. They succeed, too, unless the buyer is on her guard and knows a few easily applied tests as the ones given above.

Save these suggestions, and then have them in mind on the next shopping tour, and see how many dollars you will save, not to mention the satisfaction of getting quality goods.





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Every fruit grower should have a copy of this helpful book. It tells the correct methods and proper time for pruning every kind of tree. It shows how successful pruning is done quicker and easier with the right tools. Just write your name and address on the margin of this page, and give your dealer's name. Mail it to us today.

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Makers of "Silver Steel" Saws and Tools. Handled by leading hardware dealers and jobbers, mill supply houses and factory branches all over the world.

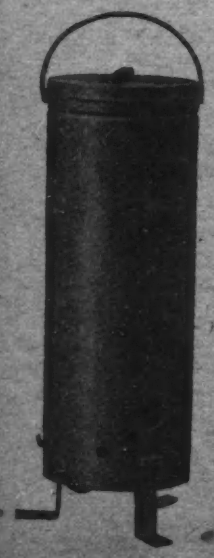
The Skinner Coke Heater

Protects Your Profit

The damaging frost in California last Winter proves conclusively that heaters are necessary in an orange grove during frost. Heaters saved the trees from damage wherever used and good prices were realized from the fruit not frozen. California grove owners have since purchased thousands of heaters—they won't be caught napping again.

A damaging frost will eventually visit Florida again and grove owners should get frost protection before the freeze—instead of afterward.

Get These Facts



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SKINNER COKE HEATERS burn with a maximum efficiency for ten hours continuously and require no further attention during the night.

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Fifteen dollars a year per acre will take care of the cost of Skinner Coke Heaters—Plus the price of the fuel, which is very low. Set aside a few boxes of your crop each year for the protection of your trees and fruit in future years. Ask us to tell you why coke is better than oil for grove heating purposes and for any further information you want regarding Skinner Coke Heaters.

Skinner Machinery Company

Fifth Street Dunedin, Florida

Pruning Deciduous Fruit Trees in California

(Continued from page 8)

Table IV

Influence of Severity of Pruning upon Development of One Year Shoots

Data taken one year after time of cutting back:

Diameter at base:	Shoots of Equal Size Pruned to: 12 inches.	24 inches.	36 inches.
French prunes	.57 in.	.74 in.	.92 in.
Bartlett pears	1.25 in.	1.55 in.	1.75 in.
No. of spurs formed:			
French prunes	4.7 in.	9.4 in.	14.2 in.
Bartlett pears	3.5 in.	10.8 in.	22.5 in.
Total length of new shoots:			
French prunes	154 in.	230 in.	284 in.
Bartlett pears	80 in.	106 in.	132 in.

These figures seem to indicate that heading-back new growth on young non-bearing trees reduces, in direct ratio to its severity resultant new shoot growth, stockiness and number of spurs formed.

Summer pruning non-bearing trees, whether performed early or late in the season, exerts a marked influence on vigor as measured by trunk increments. During the summer of 1916, four blocks of flourishing two-year-old trees, consisting of apricots, cherries, peaches, pears, plums (Japanese and European) and prunes, were subjected to various pruning treatments. Block A received no summer pruning, and the average increase in circumference of trunks was 7.5 centimeters (152 trees). Block B received a moderate thinning-out and heading-back on May 4, and the average increase of the trunks was 6.5 centimeters (252 trees). Block C received a moderate thinning-out and heading-back on May 4, and again on July 11, and the average increase of the trunks was 5.2 centimeters (96 trees). Block D received a moderate thinning-out and heading-back on August 8th, and the average increase of the trunks was 5.4 centimeters (30 trees; only apricots, cherries and pears in this block).

From the figures just presented, it seems that summer pruning at any time is devitalizing, and that midsummer cutting is more weakening than that done during the early part of the season. It is to be further noted that two comparatively early summer prunings were only a little more weakening than one given late in the growing period.

It is not the intention to give the impression that little or no pruning of young trees is desirable, but rather that the orchardist should bear in mind the observations herewith presented and shape his pruning practices with the end in view of obtaining the advantages to be derived from a knowledge of the facts. Attention should at this point be drawn to the fact that the same principles or factors governing the growth of *non-bearing* trees do not necessarily hold when *bearing* trees are considered.

Pruning experiments with *bearing* trees conducted by the California Station have not yet progressed far enough to warrant the presentation of as definite data as have been given above for non-bearing trees. Nevertheless, certain points of significant importance to western fruit growers have been clearly demonstrated.

In order to better comprehend certain plant responses, facts should be recalled concerning the annual cycle of growth and development of the fruit tree. The season's first burst of growth (blossoms, leaves and new shoots) is made largely at the expense of plant food reserves normally stored in the tree during the preceding summer and fall. These stored plant reserves are thus very materially used up during the early part of the summer, and as a consequence, the concentration of the cell sap is lowest at this time. The crude sap taken up by the roots is transported to the leaves where, with carbon dioxide from the air, the complex plant foods are elaborated. After the active vegetative period of early summer is past, the plant begins to store such elaborated foods as are not needed for the promotion of diameter growth, nourishment of the current fruit crop and development of fruit buds for the succeeding year's crop. As the season advances, the cell sap, under favorable growth conditions, becomes more and more concentrated, indicating the storage of reserves for the winter months and the following year's growth. Any practice which will aid this normal development of the tree should materially benefit succeeding wood and fruit production.

Result of Heavy Cutting

It has been demonstrated many times that heavy cutting during the dormant period, whether done on young trees or old, will result in rank succulent vegetative growth the following season. Unfortunately, many growers have mistaken these rapidly growing shoots as a sure indication of a healthy and vigorous condition of the tree. Pruning, however, may be so severe that the proper balance between the vegetative and reproductive functions are disturbed to such an extent that the new growth will take practically all the plant's energies to maintain and extend it far beyond the proper time for the termination of such development and the beginning of storage of synthesized plant foods. Cultural practices such as excessive irrigation and fertilization may bring larger both in top and root, shorter but more numerous new laterals are formed and the admission of more light to the interior of the tree stimulates the production of a continuous fruit-spur system from the lowest crotch upward; came into bearing from one to three years earlier; are more prolific, with fruit better distributed over the tree; withstand drought and frost better; and in some instances the pruning is less expensive.

Trees pruned by a heading-back process are smaller, less stocky, are slow in coming into bearing, do not bear maximum crops, are probably wasteful of water and are more subject to winter-kill and frost injury.

In putting into practice any orchard operation, difficulties in many instances are apt to arise due to the modifications which must be adopted in order to adapt such new methods to local conditions. The so-called long pruning system will in practically all cases produce a heavier "set" of fruit. In order to secure proper size and quality of this potentially increased crop, many growers must resort to standard orchard operations, which under previous conditions they may never have had to consider. For instance, hand thinning of the fruit, proper bracing of the bearing trees and provision for more adequate soil moisture are perhaps the most important operations which with the greatly increased production will prove highly profitable to the grower. The fact should perhaps be considered that although an orchard may be brought to bearing age with a relatively small amount of soil moisture, nevertheless that when the trees come into bearing a plentiful water supply must be available or disaster will result. The heavier the fruit crop, the greater the amount of water which must be available.

(Continued on page 28)

The Play at Oberammergau

By Mary Lee Adams

MANY have written their impressions of the famous Passion Play at the little Bavarian village of Oberammergau, but each one has seen it from a different individual angle. Of all the crowds that attend it, probably not more than one in every 5,000 fails to be reverently impressed. The judgment of my companion was that the person, no matter of what faith, who could witness the performance and not come away a better man, had something radically wrong with him.

Yet there was the man who sat through the long hours of that impassioned presentation and came away convinced that "It might make a decent show if they got some good actors from Broadway to take the parts." There was the woman who announced that, of course, the whole thing was ruined for her because she was familiar with the pure German accent of Hamburg and these peasants didn't have it."

It was suggested to her that the Jewish peasants of Christ's time, whom so many of the actors represented, probably did not speak with the purest Hebrew accent, so that the peasant of Oberammergau only added a touch of realism by failing to be too precise. That did not affect the question in her opinion. She had let us understand that she knew and used the purest German accent, and the incident was closed so far as her interest was concerned.

I think there must have been many who, like myself, longed yet dreaded to go, for surely such a theme must make a play which, if well acted, would be too exquisitely painful or, if poorly done, would be too utterly disappointing and almost sacrilegious.

It is this diversity of viewpoint which encourages me to tell you, not what some one else saw, but what I myself saw in the tranquil mountain village that lies at the upper end of the narrow valley beside the clear flowing Ammer. "Blessed are the pure in heart." Here men and women and even little children are dominated by the thought that if they do but live their lives worthily as followers of Christ, they will be found worthy to take part in the great event which, every ten years, portrays to hundreds of thousands of visitors His passion, death and burial and His glorious resurrection.

The world owes the Passion Play to a plague which many centuries ago, devastated the village. Anguished by the loss of family and friends, the living assembled to pray for the abatement of the plague, and made a solemn vow to God that, should their prayer be heard, they would thereafter, every ten years, present the Passion Play. Not once since then until the time of the world war, has the fulfillment of that vow been even postponed. This past summer the play was given again—two years late—which was the earliest that they found possible. When we were there, they were already talking of the performance which would be given in 1930, just eight years from now, but that will bring the play back into the regular ten year periods.

Up from Munich we came through broad, beautifully cultivated fields where milch cows haul the loaded wagons, where women reap and bind, and carry strapped to their backs, baskets as high and as heavy as themselves, and where children glean the harvested fields or drive with a wand large flocks of snowy-white, grazing geese. Innumerable charming red roofed villages with white plastered walls beautified the way. The tiniest had its church spire for the Bavarian peasant is very religious, and in that country the outer walls of the houses are frequently decorated with scenes from the bible. I recall even a barn with the figure of St. Peter painted on the door and Madonnas are everywhere. At short intervals we saw wayside shrines with crucifixes, and perched high on wooded cliffs were many romantic castles.

Leaving these behind, we crept up through dark fir forests until we sighted the towering mountains. And at last, passing the tiny hamlet of Unterammergau, we caught the first glimpse of Oberammergau and drew up to a platform swarming with crowds of people. As we stepped from the train we were at once enveloped in the atmosphere of the place. Porters met us who bore the word "Christman" in red letters across the front of their caps. All wore long, waving hair, and lovely some of them looked, just like portraits by the old masters.

These men, of course, were St. Peter, or Judas, or Nathaniel, for practically every man in the village takes some part in the play. We, to our joy, were assigned to the home of a priest, Tobias Schwalb (Swallow), whose dear little white house lay quite through and beyond the village in a green meadow set with stupendous mountains and just at the moment of arrival glowing ruddily in the sunset which lit up the tall cross that crowns the highest peak.

Tobias himself bore our suit cases through the main street seething with thousands of tourists, with long-haired men and boys, with bare-kneed hikers, with people who had failed to make reservations tearing their hair for fear they could not find accommodations. The outside of nearly all the houses was lavishly painted with sacred subjects. We turned aside and followed atop the bank of the crystal Ammer to the house of Tobias.

Here Madam Swallow met us with beaming smiles and made us most welcome and comfortable, and when we left, she and her young assistant in the kitchen pressed our hands and engaged us to return to them in 1930. They seemed as pleased to have us as if they had made a fortune out of us instead of I fear, losing money on our entertainment.

As some ill advised talk has been made about the exorbitant charges and profiteering from which tourists suffered, I think this is a good time to state positively that we could not find a trace of any such thing. The munificent sum of $1.35 entitled us to two nights lodging, five meals, and seats at the morning and afternoon performances.

Early in the season the cost in American money was greater, but so woefully had the mark depreciated in value that the villagers were obliged to raise the rate of board and lodging. Still they adhered steadfastly to the original price of admission to the play. An honorable stand which has caused them to lose a sad amount of money this year.

Think of witnessing, from the most desirable seats, this wonderful all day performance, beautifully staged, really superbly acted, for 8 cents in American money. What if one does have to pay 100 marks for admission if it comes to less than 10 cents? To my mind the most striking reverence, simplicity and sincerity mark the people, and a great injustice has been done them by those who give the impression that they mix greed with their apparently devout conduct.

The play is given in an enormous arched building with 5,000 seats all at the same price—that of admission. The actors, however, rain or shine, are on the uncovered stage whose arches allow glimpses of trees, mountain and sky, how blue it was that day!

Nothing will make you better appreciate how the spirit of the performance impressed the audience, than to tell you that the play lasts from 8 A. M. to 12, and from 2 P.M. to 5:30 and was witnessed by 5,000 seated guests and a large number who stood, yet not one murmur, not a single silly giggle, scarcely a whisper could be heard as one spectator would draw the attention of a neighbor to some special beauty or excellence.

(To be continued)

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Look about you and you'll see glistening teeth on every side today.

Teeth which once were dingy now have luster. And women smile to show them.

The reason is this: A new way has been found to fight film on teeth, and millions now employ it. It is also at your command—a free test. So don't envy such teeth, but get them.

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That film absorbs stains. Then, if left, it forms the basis of dingy coats, including tartar. That's why teeth don't shine.

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Thus most tooth troubles, which few escape, are now traced to that film.

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Old methods of brushing are not sufficiently effective. So nearly everybody suffers from it more or less.

But dental science, after long research, has found two film combatants. Able authorities have proved their efficiency. Now leading dentists all the world over are urging their daily use.

A new-type tooth paste has been created, based on modern knowledge. The name is Pepsodent. These two great film combatants are embodied in it.

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Pepsodent is based on modern dental research. It corrects some great mistakes made in former dentifrices.

It multiplies the starch digestant in the saliva. That is there to digest starch deposits which may otherwise cling and form acids.

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Thus Pepsodent gives a manifold power to these great tooth-protecting agents in the mouth.

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Send the coupon for a 10-Day Tube. Note how clean the teeth feel after using. Mark the absence of the viscous film. See how teeth whiten as the film-coats disappear.

One week will convince you that you and yours should use this method always. Cut out the coupon now.

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Pruning Deciduous Trees in California

(*Continued from page 26*)

Yields Obtained

In conclusion, it may be of interest to note certain yields which have about similar conditions. Utmost care must be taken to so correlate the various orchard operations that there will be a healthful normal development of foliage, wood and fruit.

Excessive pruning results in rank vegetative growth near the pruning cut, which, with its soft, succulent, spongy tissue, is probably wasteful in its use of soil moisture and also in times of stress may even withdraw water from the green fruit. If soil moisture conditions are not remedied shortly, the tissues of the wilted, immature fruit become irreparably injured. In sections of limited rainfall, or where irrigation water is not plentiful, the question of what type of tissue uses the greatest amount of water is most important. The data secured from careful experimentation are meagre and seem somewhat contradictory, but from field observations it appears that trees and especially vegetables with very succulent growth are those which suffer first from a deficiency of soil moisture. The fact that lightly pruned trees having during the greater part of the growing season a greater leaf area than heavily pruned ones, may under drought conditions make advisable the reducing of this evaporating surface, even at the expense of forcing more succulent growth. The California Station is now engaged in investigations which should shed some light on these perplexing and complicated problems.

The later the tree continues its active prolongation of new wood during the season, the less is the opportunity to store plant food reserves, and therefore the less is the concentration of the cell sap. It is a well known physical fact that the higher the concentration of a solution, the lower is its freezing point. Therefore, the higher the concentration of the cell sap, the more cold the tree is able to stand both during the winter and the succeeding spring. Whitten reported that "in Missouri, one plot of peach trees which had continued rank length growth until frost in autumn, had all their flowers killed at a temperature of 27 degrees. The following night the temperature dropped to 22 degrees. An adjoining plot of trees, which ceased length growth early, but which maintained healthy mature leaves to store plant food until autumn, endured the lower temperature safely without injury to their blossoms." Similar results have been obtained on various kinds of deciduous trees in California by using what the growers have termed the *"long system."*

The Long System

The essentials of this system are as follows:

After five or six satisfactorily placed main branches are secured on the young tree, no more "heading" in general seems desirable. In most cases it is not necessary to head back after the first winter pruning. Further pruning consists of "thinning-out" or "cutting back to laterals," in case the tree or any of its parts grow out of reach. This thinning must be so carried out that the proper ratio between wood and fruit production is maintained. Under most conditions the uniform production of six to eight inches of new shoot growth over the whole of the bearing apple, or sweet cherry tree, will prove sufficient to maintain this balance. In the same way, eight to ten inches on prunes and almonds, ten to fifteen inches on apricots and plums, and fifteen to thirty inches on peaches may be taken as an index of a proper vegetative vigor in these respective species. A comparatively light pruning is conducive to the development of healthy fruiting wood throughout the tree, which in this case

You Win $2000.

Costs You Nothing to Try—So Solve This Puzzle

How Many Words Can You Find in This Picture Commencing With the Letter "F"?

For example, you will notice "Fire," "Fiddle," "Foundry," etc. Are you able to find 20 words commencing with the letter "F"? The picture is very clear: there can be no mistakes. You will find it very interesting to look for these words, and may win the big prize. Anybody can try—costs nothing. Why should you not be the winner of the $2000.00?

YOU SHOULD WIN

The person having the largest list of words beginning with the letter "F" will get the First Prize. You surely have a real chance of winning at least **one of the prizes offered**—there are fifteen of them. Why not try for the big prize and win $2000.00. Somebody will win it—your chances are as good as anybody's.

Just think what you could do with the money. $2000.00 could buy an automobile and leave enough balance to make a payment on a cozy home. Perhaps you have in mind just the thing you would like to do if you received a check for $2000.00. Certainly you owe it to yourself to try to solve this puzzle. You will find the trying very easy and pleasant.

The Way to Win One of the Twenty Prizes

You do not have to spend a penny to get into this contest. It is not necessary for you to order any Yeastolax. If your list is adjudged to be one of the twenty best you will receive one of the cash prizes. Without your order for Yeastolax, if your list of words commencing with the letter "F" is the largest you receive the first prize of $50.00. If the judges award you the second prize, without your order for Yeastolax, you will get a check for $25.00; and so on down the line as shown in this announcement.

Win the Big Prize—$2000.00

If you choose you can win a great deal more than the Class A prizes. All that is necessary for you to qualify your list for the BIGGER PRIZES is to send in an order for one or more packages of Yeastolax. Look over carefully the schedule of prizes as classified in this announcement. You will find that if you send in $1.00 for one package of Yeastolax and the judges award you first prize you will get $300.00. If you send in $2.00 for two packages of Yeastolax and your list is awarded first prize you will get a check for $600.00; and so on up. If you send in $5.00 for 5 packages of Yeastolax and the judges award you the first prize, you will receive the Big Prize of $2000.00. Should your list be judged as the second best you would receive $1000.00; and so on down the list. Remember, there are twenty prizes offered, as shown. All the opportunity one could desire. Go in to win the best prize.

$700.00 Extra Award for Promptness

Dec 15th, 1922 is the last day for receiving your solution to this puzzle qualifying you to win one of the prizes. But, note this: For every day before that date that your order for Yeastolax is received an extra prize of $10.00 for each and every day will be added to any first prize won. If you send in your order today you will get a receipt for the money; then you can send in your solution any time before Dec. 15th and your list will be qualified for any of the prizes. We will award an extra $700.00 in this manner. You should try your very best to earn this additional award. It will cost you little additional effort. In case of ties we will award duplicate amounts of $700.00 to each contestant so tying. Don't overlook reading about our extra premium of 50,000.00 Genuine Russian Rubles, whether or not you enter this contest

Go after the Big Prizes—don't delay—start right away—get into the contest. How many words can you find with the letter "F"? Great amusement—great opportunity. $2000.00 is awaiting your call. Now is the time to act.

RULES: 1 This puzzle is open to everybody except employes and relatives of the Yeastolax Co.

2 The First Prize will be awarded to the person giving the largest number of words beginning with the letter "F". To the next in order will be awarded the Second Prize and so on down the list of Twenty Prizes. The awards will be made on the basis of the words submitted and not from a predetermined list. Should there be any ties the full amount of the prize will be awarded to each contestant so tying.

3 Words of synonymous meaning and words of the same spelling but different meaning will count as only one. Use either the singular or plural of a word. Only words appearing in Webster's Dictionary—and not obsolete words will be considered.

4 Words must be numbered 1, 2, 3, etc., consecutively.

5 The contest will be decided by three judges, independent of and not connected with the Yeastolax Co. These judges will award the prizes. The contestants agree to abide by the decisions of these judges, and it is understood that such decisions are to be conclusive. The names of winners and winning lists of words will be published as soon as possible after the contest. A copy of this list will be furnished to anyone upon receipt of a stamped, addressed envelope. Two or more persons may co-operate in this contest, but only one prize will be awarded to any such co-operating group.

6 Lists of names must be received at our office (any time during regular office hours) on or before Dec. 15th, 1922. For every day before (or ahead) of this date that your order for Yeastolax is received you will get an additional award of $10.00 per day, added to any first prize you win. In case of ties this award will be duplicated to every contestant so tying.

Yeastolax

If you suffer from "Rheumatism," Constipation, Indigestion, Eczema, Bronchitis, Boils, or your nerves are affected in any way; or you desire to have a fine clear healthy complexion, we want you to try a package of our marvelous remedy, YEASTOLAX. Among its various elements Yeastolax contains the highest and most potent *vitamines*, which the scientific world has found to be absolutely necessary to bodily vigor. People all over the country have found great relief through its use, and now feel the joy of perfect health and vitality. Yeastolax also has the properties of being non-gripingly and mildly laxative, yet its action is sure.

Medical authorities have long recognized that constipation is responsible for a great many bodily illnesses and prevents the human system from successfully warding off disease and old age. Yeastolax is a highly effective remedy for this condition.

IMPORTANT—Special Introductory Premium

In order to quickly introduce Yeastolax into every community, we will give to any person, regardless as to whether or not he sends in a solution to this puzzle.

Absolutely FREE—50,000.00 Rubles

The Russian Ruble recently was worth 55c per ruble, giving the above a value of $27,500.00. We give 50,000 Rubles FREE with each and every package ordered. That is to say, if you send in $2.00 for two packages you will receive 100,000.00 Russian Rubles, and so up. Remember this offer holds good whether or not you qualify for the puzzle prizes. Save this money; many a fortune has been built up by buying foreign money after wars. It is rumored that $50,000,000,000.00 worth of radium has been discovered in Russia, and the press is calling attention to vast American projects of oil and other industries that are being directed towards Russia. The Chicago Tribune on Sept. 12th calls attention to the new canal which has just been opened for shipping between Russia, Germany, Persia and Central Asia, affording a new source of raw materials for the Russo-German combine, especially oil, manganese and copper and opening up the rich Persian and Central Asian trade to Germany and Russia. Think what this means; surely you cannot afford to pass up the opportunity to acquire these Rubles. We will give 50,000 Rubles free with every $1.00 order to those who enter the contest as well as those who do not.

Twenty Prizes—$4,000.00

	Class A When no money is sent in	Class B When $1.00 is sent in for one $1 package	Class C When $2.00 is sent in for two $1 packages	Class D When $5.00 is sent in for five $1 packages
1st Prize	$50.00	$300.00	$600.00	$2000.00
2nd Prize	25.00	150.00	300.00	1000.00
3rd Prize	25.00	75.00	150.00	400.00
4th Prize	20.00	45.00	85.00	250.00
5th Prize	15.00	30.00	50.00	150.00
6th to 15th Prizes each	2.00	3.00	7.00	15.00

Yeastolax Co. 1252 S. Michigan Ave. DEPT. L-118 **Chicago**

is not shaded by the dense rank growth of new shoots which normally follows a severe heading-back.

A thinning-out method favors to the fullest extent the maximum development of tree and fruit. Young trees thus handled are in comparison with short pruned trees, of the same age, been obtained in the University orchards with no irrigation and an average rainfall of sixteen inches, by using the above outlined methods. Climax plums which were lightly pruned bore during the third season in the orchard, approximately a crate, and during the fourth season, two crates of fruit to the tree. At the same time, the heavily pruned trees produced no fruit the third season, and less than half a crate the fourth season. Likewise, lightly pruned apricot trees produced twenty pounds of fruit the third, and sixty pounds the fourth season; and prunes ten to twenty pounds of green fruit the fourth season. Heavily pruned apricot and prune trees of the same age, produced practically no crop. Pears, under favorable growth conditions, should, with the lighter pruning advocated, yield a packed box of fruit the fifth year.

Certain California growers have during the past few seasons, by the so-called long system or modifications of the same, obtained most satisfactory yields, such as, for example, two tons per acre on a ten-acre orchard of two-year-old Lovell peach trees; twenty tons per acre on a twenty-acre orchard of four-year-old Tuscan Cling peaches; an average of three packed boxes per tree on a ten-acre orchard of five-year-old Bartlett pears.

2 Year Old Apricot Tree After Pruning to Long System

Persimmon Is a Sure Cropper

Missouri is Profitable Field for This Native Fruit

THE persimmon is probably the surest cropping fruit we have, and attention is called by T. J. Talbert, horticulturist of the Missouri College of Agriculture to the opportunity for profit in its culture. It lends itself readily and uniformly to a long rest period, and it comes out late in the spring after all danger from late frost is past. Few of our native trees are so late coming into bloom. The trees usually fruit abundantly and they can be grown over a wider range of soil than the apple.

The persimmon is beginning to take an important place on our large markets and the demand is growing. It can be picked green while it is firm and allowed to ripen in storage or on the market. Some varieties ripen before frosts while others ripen during the late fall, but it has been found by experience that the fruit will be better if it is gathered before frost and allowed to ripen in storage. They will slowly candy-down in storage like grapes, prunes and figs and they are really as good to eat.

Col. J. C. Evans, deceased, of near Kansas City, owned and propagated about 15 years ago the only extensive persimmon orchard in the State. He said that it was the most valuable fruit crop he had and he had been a successful fruit grower for many years. He handled the crop in boxes and crates, like strawberries and received an average price of 10 cents a quart.

The trees come into bearing at from 5 to 7 years of age; a little earlier than apple trees. They are thrifty, symmetrical and nice growers. The straight central leader with the branches well distributed seems to be the best method of pruning.

The Oriental variety has much larger fruit than our native types and it is successfully budded or grafted on any of the common native persimmons. The budding should be done during the most luxuriant period of growth, perhaps in June, and it has been found to be more profitable to top-graft large trees than small ones.

Our native varieties can be propagated by budding and grafting or by digging down and wounding the roots of the tree and then planting the sprouts which will arise from the roots. In the South they may be propagated by root cuttings like blackberries, but in Missouri they root with difficulty from cuttings.—Mo. Farm News Service.

This Is Important— Does It Concern You?

Since the announcement, several months ago, of our decision to return to our pre-war subscription rate, despite the fact that the cost of manufacturing the AMERICAN FRUIT GROWER MAGAZINE did not justify such a course, we have received numerous letters from our old subscribers inquiring as to whether or not they, too, would be benefited by this decision.

To all these letters we have answered "Certainly," and why shouldn't we? Are you not deserving of every consideration for your confidence in the AMERICAN FRUIT GROWER MAGAZINE, evidenced in your acceptance, without a dissenting murmur, of the advance in the subscription rate of the AMERICAN FRUIT GROWER MAGAZINE when after-war conditions seemed to justify it? You certainly are!

You knew the AMERICAN FRUIT GROWER MAGAZINE would not increase the rate unless forced by conditions to do so, and when, during the period of unsettlement following the war the tremendous cost of paper, materials and labor forced us to do so, you stood with us and by your support gave us an encouragement which we shall not forget.

Those of you who paid the rate of $1.00 a year or $2.00 for three years, and whose subscriptions remained unexpired at the time of the announced reduction, have had your subscription proportionately extended. If your subscription had four months to run it was extended to eight months; if it had six it was extended to twelve, etc., etc.

Your labels do not show these extensions, for it would have been very expensive and a tremendous job to have changed them all; but disregard the label—our records are correct and you will be reminded (not dunned) of the expiration of your subscription in ample time to allow you to renew.

American Fruit Grower Magazine

Use this Lamp 10 Evenings in Your Own Home

300 Candle Power—Lights With Matches

Write Today for Special "10-Day Visit" Plan

This liberal plan puts the famous Coleman Quick-Lite Lamp on your table where you and yours can enjoy the wonderful light it gives—300 candle power of pure-white brilliance—20 times brighter than an old-style oil lamp.

Also, you can see how easy the Quick-Lite is to keep clean. No wicks to trim, no chimneys to wash, no daily filling necessary; and what a real money-saver the Quick-Lite is—cost to use, less than 2c a night; and how safe it is—can't spill fuel even if tipped over. Is listed as standard by The Underwriters' Laboratories.

Write at Once: Get full particulars about this Special "10-Day Visit" Plan. More than a million homes now enjoy this *better* light. Send now—a post card will do. Mention your dealer's name. Address Dept. F79

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"The Sunshine of the Night"

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Powerful, Reliable. Built to last; to do hard, heavy work. Big surplus power. Use cheapest fuel. 9 Months Trial, Easy Terms. Easy to start; no cranking. Most practical engine ever built. 10-year guarantee. ENGINE BOOK FREE—Write today. OTTAWA MFG. CO., 1171-O King St. Ottawa, Kans. Pittsburgh, Pa.

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We guarantee satisfaction, or your money refunded. The adjustment insures clear reception on a par with the world's greatest makes. Our sales plan eliminates dealer's profits and factory loss and expenses, hence the low price. Better phones cannot be made. Immediate deliveries. Double 3000 Ohm set, $3.98; 1000 Ohm single set, $2.98. Circular free.

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For Quicker Better Spraying

Big capacity means better spraying at less cost. You cover your orchard in quicker time and you get the material onto the trees when it does the most good.

There's a new light-weight big-capacity Bean this year at a new low price: the Bean Triplex Senior. The 6 H.P. Bean Engine and Bean Triplex Senior Pump deliver 15 gals of liquid a minute at 300 lbs. pressure. This outfit covers surprising acreage a day, and does thoro work as it goes. Besides this new outfit, we offer a complete line of Hand and Power Sprayers. Factories east and west, and representatives in all fruit growing sections, insure good service to Bean owners everywhere. Mail coupon.

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Please send me your New Sprayer Catalog
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Street
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Kind of fruit grown
No. of acres
(12-21)

Dividend checks from the American Telephone and Telegraph Company are received quarterly by more than 200,000 telephone users.

Owned by those it serves

Less than fifty years ago an application was made for a patent which created the possibility of speech between distant points. It was the culmination of years of study, research and experiment. It suggested a new aid in commerce and domestic life; a new tie to bind the people together. But it was only a suggestion—a dream.

To make that dream come true required the creation of an organization unlike any other. It demanded a kind of scientific knowledge that was yet to be formulated, as well as a type of equipment still to be devised. And it necessitated the financial and moral support of many communities.

Out of this situation grew the Bell System, bringing not only a new public service, but a new democracy of public service ownership—a democracy that now has more than 200,000 stockholders—a partnership of the rank and file who use telephone service and the rank and file employed in that service. The American Telephone and Telegraph Company exists to serve the people and is owned directly by the people—controlled not by one, but controlled by all.

Evolution is going on. Each year the ownership is more widespread. Each year the various processes of the service are performed more efficiently and economically. Each year new lines and extensions are constructed. The responsibility of the management is to provide the best possible telephone service at the lowest possible cost and to provide new facilities with the growth of demand. To do these things requires equipment, men and money.

The rates must furnish a net return sufficient to induce you to become a stockholder, or to retain your stock if you already are one; after paying wages sufficient to attract and retain capable men and women in the service. They must adequately support and extend the structure of communication.

These are considerations for the interest of all—public, stockholders, employees.

"BELL SYSTEM"

AMERICAN TELEPHONE AND TELEGRAPH COMPANY

AND ASSOCIATED COMPANIES

One Policy, One System, Universal Service, and all directed toward Better Service

Classified Advertisements

RATES 15 CENTS A WORD

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$5 TO $15 DAILY EASY—INTRODUCING NEW Style Guaranteed Hosiery. Must wear or replaced free. No capital or experience required. Just show samples, write orders. Your pay in advance. We deliver and collect. Elegant outfit furnished all colors and grades including silks—wool and heathers. Mac-O-Chee Mills Co., Desk 1411, Cincinnati, O.

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SALES AGENTS. MEN OR WOMEN. $240 A MONTH. Steady employment. Take orders for Jennings New Guaranteed Hosiery for men, women, children. Written guarantee with each pair to wear and give satisfaction or new hose free. All styles. Finest silk hose. Low priced. Write for complete line of samples. Big money for spare time. Jennings Mfg. Co., Dept. 304, Dayton, O.

MAKE $25 TO $50 WEEK REPRESENTING CLOWS Famous Philadelphia Hosiery, direct from mill—for men, women, children. Every pair guaranteed. Prices that win. Free book "How to Start," tells the story. George Clows Company, Desk 11, Philadelphia, Pa.

BIG MONEY AND FAST SALES. EVERY OWNER buys gold initials for his auto. You charge $1.50 make $1.35. Ten orders daily easy. Write for particulars and free samples. American Monogram Co., Dept. 92, East Orange, N. J.

PORTRAIT AGENTS AND OTHERS. GET BIG Profits. Sell Perry Photo Medallions. You charge $2.98; make 400 per cent profit. $10 daily easy. Big, exclusive line. 4-day service. Perry Photo Novelty Corporation, Section 26, 360 Bowery, New York.

TERRITORY SALESMEN. FIRST POPULAR PRICE Fire Extinguisher ever made. Retail $5. Others cost $15. Every home, office or factory can be sold. One man sold 12,000 in Dayton. Peck cleaning up in Detroit. $90 a week. No capital. No experience. Territory going fast. Write Thurston Mfg. Co., 105 Fox St., Dayton, Ohio.

AGENTS—MAKE BIG MONEY THE YEAR 'ROUND selling latest New York fashions, so smart looking and low priced no woman can resist buying. Strump & Co., Dept. 2, 29 West 34th Street, New York City.

WE PAY $36 A WEEK AND EXPENSES AND GIVE a Ford Auto to men to introduce poultry and stock compounds. Imperial Co., 90, Parsons, Kan.

AGENTS: NEW REVERSIBLE RAINCOAT—NOT sold in stores. Two coats in one. Guaranteed waterproof or money back. You take orders. We pay you daily. No experience necessary. Sample furnished. Parker Mfg. Co., Coat 1105, Dayton, Ohio.

AGENTS—ENORMOUS PROFITS. PERMANENT REpeat business, exclusive territory, selling highest quality products at low prices. Cocoanut Oil Shampoo retails 50c bottle, costs $1 dozen. Soaps, perfumes, extracts, etc., A. Verdina Co., 16 East 13th, New York.

EARN $110 TO $350 MONTHLY, EXPENSES PAID, as Railway Traffic Inspector. Position guaranteed after 3 months' spare-time study or money refunded. Excellent opportunities. Write for Free Booklet, G-100 Standard Business Training Inst., Buffalo, N. Y.

WANTED—MEN—WOMEN OVER 17. GET U. S. Government Life Jobs. Commence $95 to $133 month. Quick raise. Steady work. No lay-offs. Paid vacation. Short hours. Common education sufficient. Pull unnecessary. List positions free. Write immediately. Franklin Institute, Dept. F-106, Rochester, N. Y.

WANTED—TWO MEN, EXPERIENCED IN PRUNING peach and apple trees, either for permanent or only winter employment. W. E. Schmick Fruit Farm, Hamburg, Pa.

MISCELLANEOUS

YOU STAND ON THE GROUND AND PICK APPLES without bruising, with my guaranteed fruit picker. Metal part and full directions postpaid $1.00. P. W. Staffeld, 15 Merril Bldg., Saginaw, W. S. Mich.

ATTENTION—FRUIT AND POTATO GROWERS AND shippers. For sizers, sorters, carriers, elevators, packing house supplies, write to Fruit Appliance Co., Inc., Yakima, Washington.

FREE BOOK—ELIJAH COMING BEFORE CHRIST. Megiddo Association, Rochester, New York.

ARTIFICIAL EYES FITTED AT HOME $3. BOOKlet free. Denver Optik, 563 Barclay, Denver, Colo.

FARM LANDS—ORCHARDS

CALIFORNIA STATE LAND BOARD HAS FOR SALE 87 irrigated farms, 10 to 80 acres at Ballico in San Joaquin Valley, on main line of the Santa Fe Railway, only requiring 5 per cent of purchase price, remainder in semi-annual installments extending over 36½ years with 6 per cent interest. Money advanced for improvements and dairy stock. Splendid communities being established. You can farm all year in California; all deciduous fruits profitably grown; alfalfa paying crop. Ideal conditions stock and poultry. Nowhere else such a combination of winterless climate, sunshine, seashore, mountains, fertile valleys, paved highways, efficient marketing associations, excellent schools. Illustrated folders mailed free on request. C. L. Seagraves, General Colonization Agent, Santa Fe, 921 Railway Exchange, Chicago, Ill.

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FARM CATALOGUE POSTPAID. CHAPIN FARM Agency, Boston.

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PATENTS

PATENTS

Write today for FREE instruction book and Evidence of Conception blank. Send sketch or model for examination and opinion; strictly confidential. No delay in my offices; my reply special delivery. Reasonable terms. Personal attention. Clarence O'Brien, Registered Patent Lawyer, 921 Southern Building, Washington, D. C.

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FRUIT TREES GREATLY REDUCED PRICES. Direct to planters. No Agents. Peaches, apples, pears, plums, cherries, grapes, berries, nuts, pecans, small berries. Ornamental trees, vines and shrubs. Free 64-page catalog. Tennessee Nursery Co., Box 101, Cleveland, Tenn.

HUCKLEBERRIES—SEEDLESS, LARGE, SWEET. Four bearing bushes, our exclusive stock, postpaid to any climate $1. Fall planting. Educational Promoting Company, Warren, Penn.

CUMBERLAND RASPBERRY, $2.50 PER 100, $10.00 per 1000; St. Regis everbearing, $3.00 per 100. Fruit trees, small fruits, vines and roses. Wm. Mandel, Nurseryman, Bloomington, Ill.

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PLANS FOR POULTRY HOUSES! ALL STYLES IN illustrations; secret of getting winter eggs, and copy of "The Full Egg Basket." Send 25 cents. Inland Poultry Journal, Dept. 58, Indianapolis, Ind.

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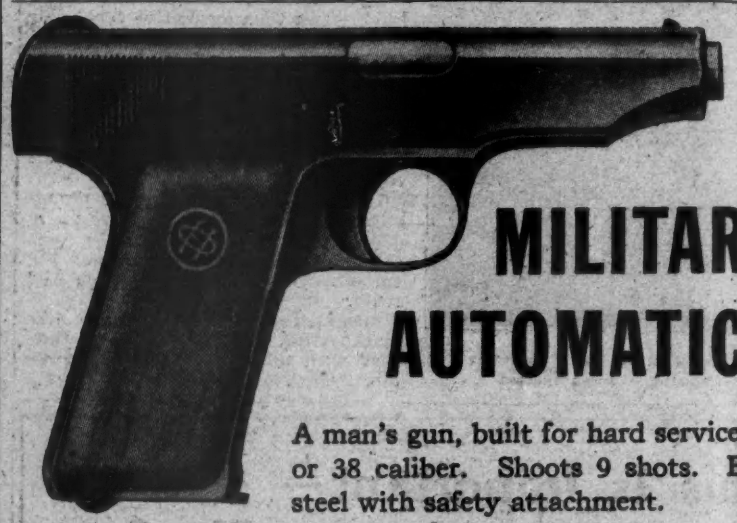
DOG OWNER'S TEXT BOOK FREE; EXPERT ADvice on proper care, training and feeding. Free 3 months' trial subscription to America's popular dog and hunting magazine. Send 25c today (coin or stamps). Sportsman's Digest, 613 Butler Bldg., Cincinnati, O.

POSITIONS WANTED

POSITION WANTED—EXPERIENCED ORCHARDIST wants job. Best of references. Address, American Fruit Grower Magazine, Box 102, 542 Monadnock Bldg., Chicago.

AUTOMOTIVE

AUTOMOBILE OWNERS, GARAGEMEN, MECHANICS send today for free copy of this month's issue. It contains helpful, instructive information on overhauling, ignition troubles, wiring, carburetors, storage batteries, etc. Over 120 pages, illustrated. Send for free copy today. Automobile Digest, 613 Butler Bldg., Cincinnati.



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A man's gun, built for hard service, 32 or 38 caliber. Shoots 9 shots. Blue steel with safety attachment.

$10.50 LESS THAN HALF PRE-WAR PRICES **$10.50**
32 or 38 caliber - - was $25 now

25 CAL. BLUE STEEL ARMY AUTOMATIC **Price $7.50**
Convenient to Carry

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A happy efficiency spreads to every corner of the farm when the Kohler Automatic Power and Light Plant first sets up its quiet hum.

At a finger's pressure lights wink on—brilliant, unwavering, safe. Power flows for washing, ironing, and sewing; for milking, cream-separating, and churning; for grinding tools and sawing wood; for delivering running water to the modern kitchen and bathroom.

The Kohler Automatic starts on the turn of a switch anywhere. It supplies far-carrying 110 volt current (city standard) up to 1500 watts (2 electrical horsepower)—direct from the generator, not through costly, wasteful storage batteries.

The Kohler Automatic is a time-tested, perfected unit. With its economical four-cylinder motor and many exclusive features it still costs no more than you are asked to pay for ordinary plants. You can buy it on convenient terms. Write today for our interesting booklet No. 23.

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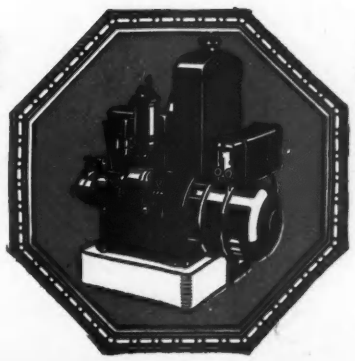

110 VOLT D. C.

Stark Tree Orchard of C. L. Witherell, at Middlebury, Vt.—3500 Stark Delicious Trees

← Average Size Stark Delicious Grown on Genuine ORIGINAL TREE Strain Tree

WHY 74 Apple Trees = 576 Bu. Apples and Bring $2,460.00 In Year On a Vermont Farm

C. L. WITHERELL bought the land where his orchard now stands (near Middlebury, in Northern Vermont) for $40 an acre. It would have made him a scant living in corn, wheat or ordinary farm crops. Set out in Stark Trees, it is rapidly making him rich.

Last year, just one block of 74 of his 11-year-old Genuine **ORIGINAL TREE** Strain of Stark Delicious trees yielded him 576 bushels of glorious apples. All but 30 bushels graded out "Fancy" or "Extra Fancy." And—they added the impressive sum of Two Thousand, Four Hundred and Sixty Dollars to his bank account.

He tells us that his **ORIGINAL TREE** Strain of Stark Delicious trees began bearing when 4 years old—and have borne every year since. He now has 1,000 more Stark Delicious 6-year-olds that he declares are "producing a bumper crop this year."

We wish that every fruit grower—every farmer—and every home-owner could see and talk to Mr. Witherell. **You** would know then WHY—

Monument Dedicated To ORIGINAL Stark Delicious Tree August, 1922 By State of Iowa

ORIGINAL TREE Strain of— Stark Delicious — Sold Only by STARK BRO'S

Bears Wondrous Money-Crops in 44 Out of 48 States!

As E. P. Taylor, State Horticulturist and Consulting Expert on Horticulture says:—"Stark Delicious trees are now growing and bearing fruit in all parts of the world—and are adapted to a wide range of climate and soil conditions." Nevertheless, there are not one-tenth enough Genuine ORIGINAL TREE Strain of Stark Delicious trees planted to begin to supply the enormous demand for this "King of all Red Apples."

We *Alone* Control Propagation From The ORIGINAL STARK DELICIOUS TREE

As testified on the inscription graven on the monument erected to the **Original** Stark Delicious Tree on Aug. 15, 1922, by The Iowa Horticultural Society and the Iowa Historical Society, C. M. Stark (then President of Stark Bros.) secured "Sole Right To Propagate" from this ORIGINAL TREE. These rights were and are PERPETUALLY OURS EXCLUSIVELY.

No other Nursery or person can propagate from this parent tree.

Though the ORIGINAL STARK DELICIOUS TREE is over **50 years old, it has never missed a crop, except one** year when all apples failed. It bore a crop in 1922 that astonished horticulturists who know that it is the ONLY tree out of a large orchard that for 50 years has withstood the severe 40 degrees below zero weather and long droughts of Iowa summers and still survived!

We continually RENEW our propagation from this ORIGINAL TREE. We keep our ORIGINAL TREE Strain of Stark Delicious trees always close to the ORIGINAL Stark Delicious tree.

We are more anxious than you are that our ORIGINAL TREE Strain of Stark Delicious Trees will show the same remarkable hardy, vigorous and heavy bearing, annual bearing characteristics of the ORIGINAL Stark Delicious TREE.

That's *WHY* A Man Like A. A. Marshall (Mass.) Buys *His* DELICIOUS TREES From Us

He knows that "a spring is purest at its source." And, Mr. Marshall, whose orchard near Fitchburg, Mass., is said by many to be "The ideal commercial orchard of America," is selling his Stark Delicious "75 apples for $6.00" for the harvests from his 6,000 tree orchard. He tells us that his 8 and 9-year-old ORIGINAL TREE Strain of Stark Delicious trees bore about 20 bushels each, this past summer.

WRITE —USE COUPON and Get The Big 80-Page, 4-Color Masterpiece, 1923 "PRIZE FRUITS" BOOK

It will give you **FACTS** that are worth while to any man who is taking the important step of **investing in fruit trees** for planting on any land he owns. We emphasize the words "investing in fruit trees" because you are buying them for future dividends. If you **DON'T** exercise care in getting the **BEST** money-making fruit trees, you **WON'T** enjoy the **BEST** dividends.

So,—why not **investigate**, before you **invest?**

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The book gives all the **NEW** Developments of this "Queen Of All Golden Apples." You may be a skeptic, but why not give yourself the **OPPORTUNITY** of knowing what planters of this variety have **FOUND OUT**—by sending the **COUPON** for a copy of this 1923 Edition of our "Prize Fruits" Book?

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